

Ex. H (1948)

Me series

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1/2
8/2/47

dy 12-5-48

100

W. S. Bohme - Mangalore City -
Preparation of plans and estimates -
Sanctioned

REF: C5-1405/47.

Municipal Office, Mangalore,
Dated the 8th March, 1947.

From

Sri M. Narayana Shenoy, B.A., B.L.,
Commissioner, Mangalore Municipality, Mangalore.

To

The Secretary to Government of Madras,
Education and Public Health Department,
Fort St. George, M a d r a s.

Through

The Chairman, Municipal Council,
M a n g a l o r e.

Sir,

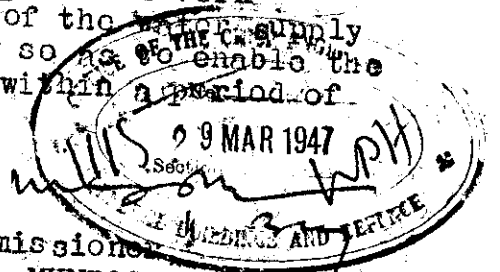
Subject: WATER SUPPLY SCHEME - Mangalore Municipality
Further revision of the order of priority and allotment of a
higher place in the compendium - Requested.

1. The Government in their order No. 3392, Public Health, dated the 27th November 1946 have been pleased to approve the revision of the order of priority to water supply scheme for this municipality stepping up the rank from 31 to 28. The Council in its resolution No. 14 dated the 16th January 1947 has resolved that the Government may be requested to give still higher priority for the scheme and the following facts are advanced in support of the same for kind and favourable consideration of the Government.

2. In spite of the fact that the question of providing protected water supply to this town had been mooted out as early as 1895, nothing had been accomplished so far after a lapse of over 50 years and according to the rank now assigned, it is probable that the town may not have the benefits of the water supply scheme for another ten years. The town is fast growing in population and extent and under the prevailing topographical condition of this West Coast Town, proper expansion of the town is highly retarded as the expansion stretches of vacant lands in high grounds cannot be made use of for residential purposes due to the availability of water thereat and the existing residential localities in plain ground are becoming more and more over-crowded. Typhoid and other water-borne diseases continue to be endemic in the town and of the death-roll due to fevers, deaths due to Typhoid alone ranges between 56% to 71% during the last six years. Filariasis is alarmingly on the increase and it is an appalling and heart-rending scene to see so many residents affected by the same. Even though certain precautional and remedying measures are undertaken by the Council, the root cause cannot be removed unless and until a protected water-supply and an effective drainage system is introduced in the town. With the growth of population and improvements in other directions of the Municipal administration, this municipality has acquired the status of a I grade Municipality and has since been declared accordingly by Government. Urgent necessity for a water supply scheme had been felt and recognised by Government long back and the preliminary investigation had been completed recently. The Council, very keen on providing this amenity to the public in the interests of public health and convenience is levying water tax from the year 1941 and is prepared to enhance the rate of taxation should circumstances warrant such increase. It is seen from letter No. 8365/46-2.W.S. (5)W.S., dated the 17th January 1947 from the Sanitary Engineer to Government that the report on the scheme of water supply to Mangalore had been sent to the Chief Engineer, Public Works Department (General, Buildings & Defence) in this office letter No. 2258-1/46-W.S., dated the 11th December 1946/7th January 1947 and it would be in the interest of the Municipality if further working on the scheme is taken up immediately.

From the facts explained above, it is submitted that the Government would feel that the preparation of plans and estimate for the water supply scheme of this municipality is of an urgent and immediate necessity and it is requested that the Government

may be pleased to order the taking up of the work immediately by stepping up the rank of the ~~water supply~~ scheme of this municipality suitably so ~~as to enable the~~ scheme being completed and executed within a period of at least another five years.



V/11.3.47p/

Commissioner
BANGALORE MUNICIPALITY.

FORWARDED,

It is pitiable that a town with its high standard of natural beauty and with its high standard of domestic on show, should be kept so unhealthily for want of a supply of water. I earnestly request that the town may be given the benefit of protected water supply within a period of not more than 5 years. This is a very

12-3-47

Chairman M.C.

P.H. (H)

Endorsement No. 21671-1/47 H.P.H. dated 23-3-47.

Referred to the Chief Engineer, Public Works Department, (General, Buildings and Defence), for remarks.
(By Order)

25.3.47
25.3.47

Asst. Secy. to Govt.

To the Chief Engineer,
Public Works Department,
(General, Buildings and Defence)

DEPARTMENT.

REMINDER.

Public Health Branch.

To THE Chief Engineer,

P.W.D., (G. B. D.)

I have the honour to invite

I am directed to invite attention to Enclt.

No. 21671-1/47^{P.H.}, dated 27-3-47 andto request that the reply to it may be expedited
~~request that this reminder may be returned at once~~
~~with information as to~~

- (1) the stage at which the matter now is,
- (2) the date by which a reply may be expected, and
- (3) the circumstances which have caused the delay.

Office Secretariat

Signature.

Station at St. George

Asst. Secy. to Govt.

Designation.

dated 24-11-47

SUBJECT.

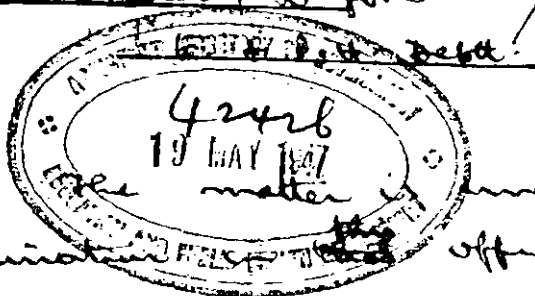
Water supply scheme - Mangalore Municipality - Higher priority in the Compendium.

[P.T.O.]

2

1374 WPH/47-^{C.F. 92.}
REPLY. d/7-5.4

To The Secretary to Govt.



Sir
The matter is under examination in the office.

A report will be submitted to Govt. before the end of this month.

Pienkata Ramanan

17.5.47
for chief Secy

(S. R. S.)

17.5

EJPH(H-1)

The C.F. may be reminded on 10.6.47, if necessary.

10.6.47
21.5.47

2 of 100

Office of the Chief Engineer, P.W.D.,
Genl. Bldgs. & Defence, Chopaluk, Madras.

Endorsement No. 1115-WPH/47-2 dated 17th May 1947.

Submitted to Government with reference to their
Endt. No. 21671-1/47-H.1.P.H. d/27-3-47.

2. I agree with the Sanitary Engineer and consider
that in view of the fact that the Municipality was assigned
a higher place only recently in the compendium there is
no further ground for raising its rank in the compendium.

43492 ✓

S. Ven. Kata Raman

for Chief Engineer, P.W.D.

20-5-47

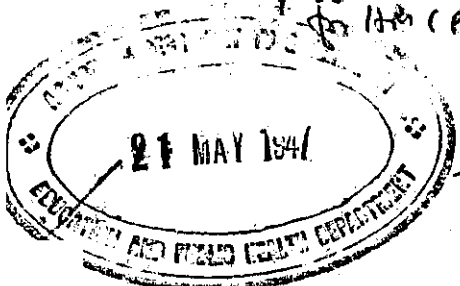
To the Secretary to Government,

Education and Public Health Deptt. with the

Govt. endt. in original returned.

SKL/19-5-47. Man...
for the disposal of this file is put up in another
file now in circulation.
This may lie over till 1.6.47.

For CH-1)
Gm 3392 P.H. d/ 27.11.46 required
for the disposal of this file is put up in another
file now in circulation.
This may lie over till 1.6.47.



20/5/47
30-5-47

20/6/47 (cc)

Office of the Sanitary Engineer to Govt.,
Chepauk, MADRAS

No. 3864/47-W.S/39-(5)-W.S., dated 23rd April 1947

To

The Chief Engineer, P.W.D.
(Genl. Buildings & Defence), MADRAS

Sir,

Sub: Water Supply Scheme - Mangalore municipality - further
revision of the order of priority and allotment of
higher place in the Compendium

Ref: Chief Engineer's Endt.No.1115-wph/47-1, dated 9-4-1947

W. reached here
The question of assigning a higher place for Mangalore Water Supply was Considered only recently, and its rank raised from the 3rd 31st to the 28th place in G.O No.3392 P.H (Education & Public Health Department), dated 27-11-1946, after consulting the Director of Public Health.

2. The investigation report has been sent to the Chief Engineer in this office letter No. 2256-1/46 W.S., dated 11-12-1946 and 7-1-1947. There seem to be no further grounds to reconsider the ranking of this scheme in this compendium at this stage.

Encl:
one sheet
in original

K. Venkatesh
24/4/47
For Sanitary Engineer to Government

NS/24-4-47).

bel
24/4/47
p.t.o.

CA 326404-1

PC Logo

47

T.M.

ESD4 (H-1)

From the Jst. Secy to Govt, ESD4 Dept
To the Dy. C.E., P.W.D., (G.B.S.)

sent
19/5

Please say urgently whether
the investigation of the Hassanlammar and
Gurpur sources for the water supply
scheme of the Mangalore City, has been
completed taken up and if so, when
it will be completed.

15.5.47

16.5.47

17.5.47

42029
OFFICE OF THE CHIEF ENGINEER, P.W.D.,
General Buildings and Defence,
Chepauk, Madras.

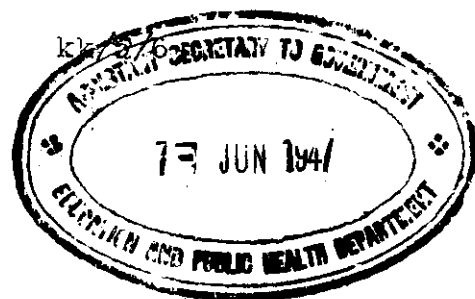
POST COPY OF T.M.No. 2251-WP/46-9 dated 5th June 1947

From the Chief Engineer, P.W.D. (G.B. & D), Chepauk, Madras.
To the Assistant Secretary to Govt., Edn. & P.H. Dept.

Sub: Water supply - Mangalore Municipality - Investigation.
Ref: Your T.M. dated 19th May 1947

note
The investigation of the Hassaman and Gurpur Sources for the water supply scheme of the Mangalore Municipality has been taken up and completed. A report on the investigation is under scrutiny in this office and will be submitted to Government by about the end of this month.

/true copy/



G. Chandrasekhar
Superintendent

8/6

5/6

Draft 1

EXP. H(CH-1) 113

W. S. and D. Schemes - Mangalore City.

Memo. No. 21671 H-1/2-2 P.D. 16/6/67

The Govt desire ^{that} the Public Health Board ~~is~~
~~requested to~~ ^{may} consider at ^{the} its meeting to be
held on the 20th instant the question of
assigning ~~a higher place for Mangalore~~
in the Compendium of Provincial
Requirements of water supply and
drainage ~~at a higher place for Mangalore~~
in respect of ^{both} W. S. and D. Schemes.
The Board is also requested

^{to} consider at the meeting to be held on the
20th instant the general question
relating to the matters to be taken into

A/r on 16/6/67

Handwritten notes on the left margin, possibly a signature or initials.

account in fixing place in the
compendium.

~~16/6/07~~ 2 The D.P.H. is requested
to include these subjects in
the agenda for the meeting to
be held on the 20th instant.

To the D.P.H.
Copy to the C.E.
P.W.D.
(G.B.S.D.)

~~16/6/07~~

~~16/6/07~~

~~26.6.07~~

~~16/6~~

P.T.O.

p3 mra

Draft II

EPH 44-1

W.S. and d. schemes - Assignment of
places in compendium of Provincial
Requirements.

of Memo: 21671 H-1/47-3PA d/16/6/47
Entire

The Govt. desire that the
general questions relating to the matters to
be taken into consideration in fixing
ranks ~~for schemes~~
places in the compendium of Provincial
requirements and W.S. and d. ~~schemes~~

not put up ~~may also~~ be considered by the Committee
appointed in go 1907 P.H. d/2.6.47.

To the Executive

Engineer
(Public Health)
Southern Circle

Cheraw, Madras

Copy to the C.E. (P.H.)
(2/10/47)

16/6/47

16/6

The Secretary
Committee is requested
to place this subject
before the Committee

at its fresh meeting,

and a scarier and deeper

its veins to look. A sea

A possible.

4

16.6.27

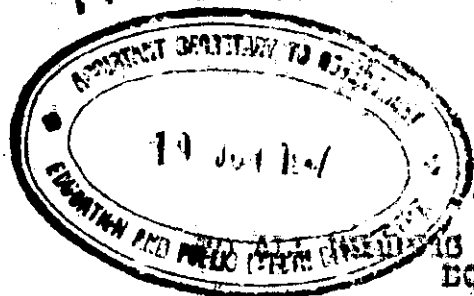
26.6.27

Public Health Board -- Special Meeting -- 20th June, 1947.

AGENDA -- Supplementary Items.

50899
ATK
1947
1) The question of assigning in the compendium of Provincial requirements of water-supply and Drainage, a higher place for Bangalore in respect of both water-supply and drainage schemes.

2) The general question relating to the matters to be taken into account in fixing ranks for the schemes in the compendium.



Minum H 1870
for Director of Public Health,
and Secretary, Public Health
Board, Madras.

✓ Copy to the Secretary to Government, Education and Public Health
Department, Fort St. George, Madras.

Ms.18.6.47.

Submitted for perusal.

19/6/47

*46
1847*

20 June 1947

Mangalore -- Water-supply and Drainage Schemes.

Mangalore had not been included in the priority lists of water-supply and drainage schemes till 1942. In 1943, it was one of the new schemes to be considered for inclusion in the priority list (among out-line schemes which have not been investigated). In G.O.No.55-P.E., dated 7th January, 1946, it was assigned 51st rank under water-supply and 70th rank under drainage in the compendium. Subsequently, in G.O.No.3292 P.E., dated 27th November, 1946, the municipality was assigned a higher priority under water-supply viz., 23.

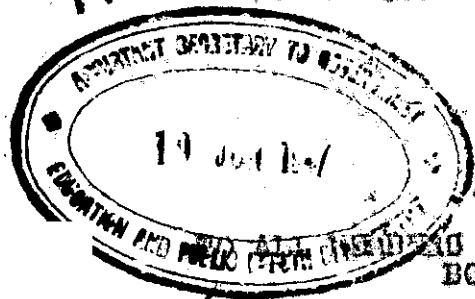
ks.18.6.47.

Public Health Board -- Special Meeting -- 20th June, 1947.

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2) The general question relating to the matters to be taken into account in fixing ranks for the schemes in the compendium.



[Signature]
for Director of Public Health,
and Secretary, Public Health
Board, Madras.

ALL MEMBERS OF THE PUBLIC HEALTH BOARD.
✓ Copy to the Secretary to Government, Education and Public Health Department, Fort St. George, Madras.

ks.18.6.47.

Submitted for perusal.

[Signature]
19/6/47

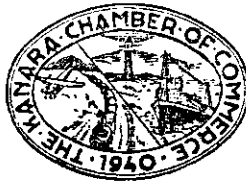
46
44

[Signature]
6/7

EOH ACH-1)

THE KANARA CHAMBER OF COMMERCE

MANGALORE



SOUTH INDIA

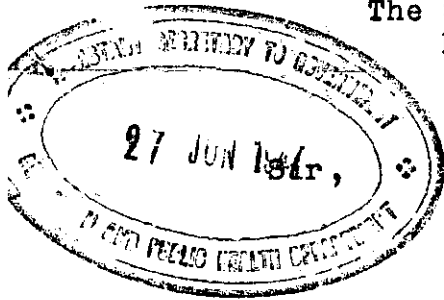
TELEGRAMS: "CHAMBER"
TELEPHONE: 128

P. O. Box No. 116,

Date 24th June, 1947.

To

The Secretary to the Government of Madras,
Education & Public Health Department,
Fort St. George, Madras.



Sub: Rural Water Supply Schemes - Protected
water supply to Mangalore City-priority
to be given.

53080
Aru
27/6/47

We learn from the Madras Dailies, that the Health Board has set up a sub-committee to consider the priority lists in respect of water supply and drainage schemes in rural areas. In this connection this Chamber stresses the need to give high priority to the scheme for protected water supply to Mangalore City in South Kanara District.

Mangalore City in the district of South Kanara, has at present a population of nearly 125 thousand and deep sunk wells are the source from which drinking water is obtained for the populace. Whereas in sparsely populated areas, well water may be quite healthy for use, in thickly congested areas like our city, where drainages and wells are situated close by and grave yards exist within the Municipal limits, it is disclosed that well water in most cases is highly contaminated, with impurities and water borne diseases are on the increase year by year. Well diseases like the Filaria, Elephantiasis, Typhoid etc., are highly prevalent in our City and ravaging the health of the inhabitants.

We understand that our local Municipality had sometime back sent up to the Government a scheme for protected water supply to this City and we urge upon the Government to direct this appeal to the Sub-Committee appointed by the Health Board and assure Mangalore, the water supply scheme a high priority. We remain ever grateful.

I have the honour to be,
Sir,
Yours obediently,

E M E M O N I K E S M H.

HON. SECRETARY.

20
No. 21671 H-1/W

EPH(H-1)

The question of assigning in the Compendium of provincial requirements of W.S. and D. a higher place for Mangalore in respect of W.S. & D. was ^{one of the subjects for} ~~considered by~~ ^{considered by} the Public Health Board at its meeting held on 20.6.47.

This may lie over till 1.7.47 ^{or till} ~~proceedings~~ of the proceedings of the P.H. Board meeting are received whichever is earlier.

Processing
of the P.H. Board
has been referred
Pl. get copy

Form E1

3.8.6.47

E1 Section may be requested to put up a copy of the proceedings of the P.H. Board

Copies of the proceedings are being taken.

A copy will be sent to H1 Separately.

To E1, m.

AD.
2-7-47
27/7/47

THE MADRAS PUBLIC HEALTH BOARD

Proceedings of the special meeting of the Public Health Board held at 11 A.M. on Friday the 20th June 1947 in the Committee Room of the Madras Legislature, Fort St. George.

The following members were present:-

1. The Hon. Sri J.B. Shett, Minister for Public Health (Chairman)
2. The Hon. Mr. T.S. Rajan, Minister for Food and Labour
3. Col. S.L. Dutt, Surgeon-General with the Govt. of Madras
4. Sri S.I. Achandran, Sanitary Engineer to the Govt. of Madras
5. Mr. K. Umaita, M.S., Inspector of Municipal Councils and Local Boards
6. Sriantai V. Lakshmi, A.M.A., M.L.A.
7. Rao Bahadur Mr. R. Mathew, Director of Public Health (Secretary, Public Health Board)

Rao Sahib Dr. R. Nanthan Pillai, Asst. Director of Public Health in charge of Environmental Hygiene, was also present by invitation.

The items of the agenda were taken up for consideration serially.

Item No. 1 of the agenda: Confirmation of the minutes of the meeting of the Public Health Board held on 23-11-46:

The proceedings of the previous meeting of the Board held on 23-11-46 (copies of which were circulated to members) were confirmed.

Item No. 2 of the agenda: up in the current year:

Post-war Schemes to be taken

On the suggestion of the Hon. Mr. Rajan, Mr. Mathew explained the note prepared and circulated with reference to the two main post-war schemes which were sanctioned by the Government for being taken up during the current year, viz., scheme No. 37-Training of Health Visitors and (2) Scheme No. 92-Expansion of Public Health Services.

(1) Scheme No. 37: Training of Health Visitors: While explaining the note on the subject, Mr. Mathew pointed out that in view of the fact that the training is conducted in the Govt. Training School for Health Visitors at Madras would not meet the needs of Post-war Scheme No. 92 because provision was made only for the training of 25 candidates each year, the proposal to start training in three centres, viz. Madras, Cuddalore and Karaikal was approved by the Government so that 100 candidates might be trained each year. But, the main difficulty was getting the required number of men. Mr. Mathew stated that last year he was able to get only 22 men and this year 25 and even among these several of them had to be exempted from the requisite qualifications.

Discussion then centred round the availability of candidate places where there could be given training, accommodation for the candidates, both for training in mid-wifery and Health Visitors courses etc.

The Hon. Mr. Rajan suggested the taking in of all available candidates with M.L.C. qualification and fit for the job, without insisting upon any extra qualification, for giving training as Health Visitors and in the case of those who had not already the mid-wifery training, they might be trained in it before the completion of the Health Visitors course and then eligibility, certificate or diploma might be granted to them. He also hoped that if the above suggestion was given effect to, a large number of girls would be forthcoming. It was generally agreed that the minimum qualification should be the minimum qualification.

The Surgeon-General was of the opinion that in regard to midwifery training, it depended on two factors, viz., (1) number to be trained in each hospital and (2) proper residential accommodation.

In regard to giving practical training in midwifery and Health Visitors courses, the Hon. Dr. Rajan suggested that the candidates selected might conveniently be attached to the big hospitals in the localities concerned. As regard to residential accommodation, he suggested that the body responsible for giving training should try and get places under its control, if necessary by renting, and that such accommodation should be found as near as possible to the existing hospitals where training was intended to be given. They should not wait for new hospitals to be opened in the future. He considered that the immediate need was to train as large a number as possible at the earliest possible moment. The problem of candidates from the urban areas could be easily solved by allotting them to the hospitals in their own areas. He hoped that, if necessary, Government could be ready to render every possible help in the matter of securing accommodation etc.

Dr. Nathan expressed the hope that if the schemes were pushed through all the people trained would be absorbed.

Scheme No. 91: Expansion of Malaria Bureau: The note prepared in respect of the scheme was explained by Dr. Nathan and he stated that Government had sanctioned the establishment of four regional organizations with headquarters at Vizagapatnam, Bellary, Attal and Bangalore with necessary staff for each of the headquarters and a few field units.

The Hon. Dr. Rajan wanted in this connection to have statistics placed before the next meeting of the Joint Committee to the incidence of malaria and the results achieved so far in the particular areas where the scheme was already being put in operation and what was proposed to be done in the future. He considered that there was no use keeping the information in confidential records and since large sums of money were being spent and the public were entitled to know the activities of the department and they should not be kept in the dark. He said that already a number of complaints had been received. He also suggested the issuing of periodically Public Health Bulletins explaining the activities of the department from time to time. They should be issued at intervals of two or three months. If these were done, he hoped that sympathy and support from the public would be forthcoming in a large measure. He was of the opinion that if at all any department of the Government required sufficient publicity, it was the Public Health Department more than any other. He also suggested that it would be more ~~thoroughly~~ useful if the activities of the department were published in journals both in India and in foreign countries which were catering for such information. He promised to give a list of such journals. He was also sure that the local press would be very glad to publish such information which might be useful to the public at large.

Scheme No. 92: Expansion of Health Services - Primary Health centres:

Dr. Nathan explained the objects of the scheme with reference to the plan prepared by him and stated that for the current year it was proposed to start 5 taluk and 50 primary health centres in the Districts of Malabar, North Arcot, Coimbatore, Madurai and Coimbatore.

The Hon. Dr. Rajan stressed the importance of concentrating more than anything else on the basic structure of the village service.

After some discussion the scheme was approved.

Scheme No. 91: Industrial Hygiene:

Dr. Mathew drew the attention of the Board to the note prepared by him outlining the scheme and suggesting the establishment of a Central Bureau of Industrial Hygiene under an Asst. Director of Public Health, four regional officers and staff. Though the need for such an Industrial Health Organisation was recognised, the Government agreed to sanction an Asst. Director of Public Health and two Regional units at Coimbatore and Madurai and called for revised estimates which were sent up. The sanction of Government was expected.

Scheme No. 94: Nutrition Research:

The Hon. Dr. Rajan desired to have a short note on what was being done actually in regard to the matter since the scheme was started in July 1946 up-to-date to enable him to compare the work performed by the Nutrition Officer who was working under him in the Food Department. Dr. Ananthan provided to furnish details to the Minister.

Scheme No. 95: Conveyance and Sanitation: Dr. Mathew stated that the note on the subject prepared by him had a bearing on scheme No. 92 because the two schemes were allied.

The Hon. Dr. Rajan opened that though the scheme was an ideal one he had no quarrel about the results to be achieved.

Dr. Ananthan pointed out that already a lot of work had been done for the last two years, but the actual difficulty was that of funds. He said that the proposal was to construct 10 public latrines in each primary health centre area and to give subsidies at a concession rate to encourage the construction of private latrines. One of the large expenditures involved in the proposal, the Government wanted the omission of the scheme, but strong representations were made to the Government pointing out that the scheme went hand in hand with scheme No. 96 and therefore it should be sanctioned. Orders of Government were awaited for the proposal.

The Hon. Dr. Rajan pointed out that there were 11 latrines were useless, that even in places where experimental latrines were undertaken there was a failure and that even rich people in rural areas did not favour latrines in the houses.

Scheme No. 96: Public Health Propaganda and Publicity.

In reply to the Hon. Dr. Rajan, it was stated by Dr. Ananthan that the Public Health Bulletin was being issued.

Item 5 of the Agenda: Water supply and drainage schemes Priority List - Comparison of Provincial Requirements.

The note prepared by the Director of Public Health was explained to the Board. In doing so Dr. Mathew said that plans and estimates for the schemes in Appendix I of O.O. No. 55 Public Health dated 7-1-46 were sanctioned and though the works were not all started their execution had to be delayed a little or far.

On the suggestion of the Hon. Dr. Rajan, the Sanitary Engineer explained the progress of the various sanctioned schemes.

The Hon. Mr. A. E. Sletty (Chairman) stated that there were a number of complaints received from the public about priority not having been given to certain schemes.

After some discussion it was agreed to constitute a sub-committee of the Board to go into the question of priority of these schemes and that the sub-committee should have power to re-arrange the priority bearing in mind that half-finished and related schemes must be taken up for execution first.

Prinathi V. Lakshmi Ammal put forward in this connection the claim of Tichenor as an important pilgrimage centre for water-supply and drainage and that it might be taken up along with other schemes.

In regard to the constitution of the Sub-committee, it was agreed that it should consist of the following:

1. The Hon. Minister for Public Health.
2. The Sanitary Engineer to Government.
3. The Director of Public Health with power to co-opt experts.

The Hon. Mr. Raja suggested that the Public Health Board should meet at least once a quarter. He also considered that it would be usual to see co-opt or other members that in order to facilitate the work of the Board, the Secretary to the Government in the Secretariat should also be present at the meetings of the Board.

The Head of the Agenda: Rural Water-Supply Scheme:

In this connection Mr. Lakshmi stated that the Director of Public Health had practically nothing to do with rural water supply and that it was primarily a matter for the Board of Revenue and unless they co-operated in the matter it was difficult to proceed with the scheme.

Mr. Hon. Mr. Raja requested that if a representative of the Board of Revenue was also a member of the Public Health Board the problem would be solved.

After some discussion it was agreed that the Director of Public Health might call up the matter in the Board of Revenue and get necessary information.

Mr. Raja and Mr. Lakshmi then discussed the malaria problem. Mr. Lakshmi stated the importance of tackling both the problems together and wanted to know whether the malaria campaign in action would all be destroyed, another outbreak of malaria. Mr. Raja replied that it could be done and stated that malaria was not a local problem as malaria was not confined to one place but was a general problem. He further pointed out that while malaria was a rural problem, malaria was an urban problem.

The meeting then dispersed.

G.No. 21671H-1/10

Special

W.S. Scheme

Mangalore City

p 9 c1

From the C.E.

T.M. No. 2251-WPH/46-9, d/5.6.47

Memo: No.

21671H-1/42-58A d/25-9-47

p 4 n1

investigation report of the W.S. Scheme for the Mangalore City has been pending with the C.E. (Highways) for a long time. He is requested to submit it to Govt as early as possible.

d/25/9/47

possible

without any undue delay.

To the C.E.
(Highways)

25.9.47

25.9.47

SPECIAL:

PUBLIC WORKS DEPARTMENT.
No. 2251-~~2251~~/46-13 dated 29th Sep.'47.

M: W. H. Turner, Esq., B.Sc., A.M.I. Mech. E. To
Chief Engineer, P.W.D. (W.S. & Drge.)
Chepauk, Madras.

The Secretary to Government,
Education and Public Health
Department, Madras.

Sir,

Sub. Water supply scheme - Mangalore Municipality -
Ref: Education and Public Health Memorandum No. 21671-H/47-5
dated 25-9-1947.

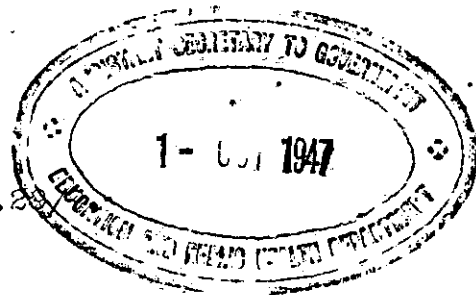
The investigation report on the above Water Supply Scheme will
be submitted to Government with my recommendations by the 1st week of
October 1947.

Henkatz Ramanam

30.9.47

for Chief Engineer, P.W.D.
(W.S. and Drge.)

ppr.2



29/9

~~Estt H (H-1)~~ C No. 21671 H-1/w

W.S. Scheme ~~Mangalore City~~

~~222~~
~~10/90~~

Very urgent.

From the C.E (H) No 2251-P.W.W/46-13, d/ 29.9.47

Memo: No 21671 H-1/w - 6 PH d/ 9-10-47

p31 ante

The C.E (H) is requested to expedite the submission of the report promised in his letter read above.

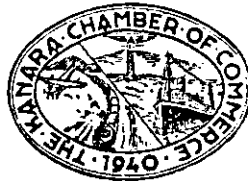
~~8/10/47~~ 14
8/10/47

~~9/10/47~~

~~8/10/47~~ p31 ante
11/10.
to the C.E.
(Highways)

THE KANARA CHAMBER OF COMMERCE

MANGALORE



SOUTH INDIA

TELEGRAMS: "CHAMBER"
TELEPHONE: 128

P. O. Box No. 116,

Date 15th October, 1947.



The Secretary to the Government of Madras,
Education & Public Health Department,
Fort St. George, MADRAS.

Sub: Protected Water Supply to Mangalore City - Scheme to be started early..

I once again desire to urge before you the necessity for providing protected water system to the growing city of Mangalore in our district.

3122
APM
17/10/47
We understand that several organisations and Bodies from this district have for the past few years, agitated for the introduction of the water supply system, but hitherto we have no assurances from the Government that the scheme would be taken up early. We submit that in the interest of the health of the citizens of this city, the water supply and drainage scheme cannot be kept back any longer, and the Government has to take up early consideration of this matter.

We recount, that owing to tremendous increase in the population of this city, new habitations have sprung up, and the open drains and water channels running close by the wells, have contaminated the water in the wells, thus giving scope for water borne diseases like the Filaria, Elephantiasis, Typhoid and Malaria. The fell disease Filaria and Elephantiasis is gripping the major portion of the citizens especially the poorer classes and unless immediate measures are not taken to over-come the same we apprehend that entire city would be effected.

We learn, that there is a perennial water-source about two miles distant from the city which is capable of supplying the water needs of this city. There are other equally good sources of water within a radius of 15 miles from the city which could be utilised for meeting the needs of this city. We request the Government to send competent engineers to survey the water-source and draw up an estimate of the cost of laying the water pipes and drainage, and after the said experts submit their estimate, then the Government is requested to make a provision in the next Budget for meeting the expenses of the project.

The matter may be considered early. We remain thankful. _

I have the honour to be,
Sir,
Yours obediently

P.R. Shetty
HON. SECRETARY

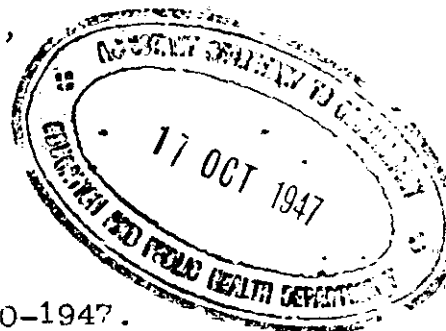
PUBLIC WORKS DEPARTMENT.

From

W.H. Turner, Esq., B.Sc., A.M.I. Mech. E.,
Chief Engineer (Highways) General Branch,
Chepauk, M a d r a s.

To

The Secretary to Government,
Education and Public Health Department,
Fort St. George, M a d r a s.



Letter No.2251-PWW/46-14, d/8-10-1947.

83108

Sir,

WATER SUPPLY SCHEME--Municipality--Investigation of Hassanar
and Gurpur Sources--Report:

Ref:- G.O.No.Ms.375, Public Health, dated 7-2-1946 and corres-
pondence resting with my No.2251-PWW/46-13, d/29-9-1947.

I forward herewith the report of the Executive Engineer,
(Public Health), Southern Circle on the investigation of the above
Water Supply Scheme. The Sanitary Engineer agrees with the recom-
mendations therein. A note containing my remarks thereon is
appended.

2. Three alternative schemes are envisaged in the report, and
the capital and maintenance costs for these as per the revised esti-
mates worked out in this Office are given below.-

	Capital Cost.	Maintenance cost.
	Rs.	Rs.

- | | | |
|--|--|---|
| (1) Protected Water Supply to
the Mangalore Municipality
alone at 20 gallons per
head per day from the Gur-
pur River Source. | 46.15 lakhs. - | 38,000 |
| (2) A composite scheme with Gur-
pur River Source to serve
the Mangalore Municipality
at 20 gallons per head per
day as well as the villa-
ges enroute at 5 gallons
per head per day. | 48.41 lakhs. | 46,000 |
| (3) A scheme utilising the Hassa-
mar valley source intended
to serve 60,000 people at 6
gallons or 2 gallons for the
ultimate population of
1,75,000 in addition to Gur-
pur River Source (as per
11) or (2)-above). | Extra over and
above scheme 1
or 2 about
Rs.9.80 lakhs. | As this is a
gravitation scheme
the hours of pump-
ing will be red-
uced correspond-
ingly in items 11
(1) or (2) and
hence the savings,
in scheme 1 Rs.3,000/- &
savings in scheme 2 will
be Rs.4,000/-. |

The relative merits of these schemes are discussed in para 15 of my
Note and as stated therein, I recommend scheme 2 for the acceptance of
Government.

3. Due to varying grades of sand met with along the line of the
proposed Infiltration gallery and to the widely fluctuating rate of
yield from the borings, it is not possible to assess before-hand the
exact length of gallery needed. It is therefore essential to execute
a tentative length of gallery say about 1,020 feet and extending from
boring No.19 to Boring No.5 as a first stage of execution, conduct
full power tests, and then decide the exact length of gallery required.

P.T. O.

Therefore sanction may also be accorded for taking up this first stage of execution **IN ADVANCE OF THE PREPARATION OF DETAILED PLANS AND ESTIMATE** for the scheme.

A. K. Katar *Ramman*

For Chief Engineer (Highways). ^{11. x 47}

Encls.--

Blue Print Plans

San.No.39 to 49/46.

Appendices 4

Executive Engineer (Public Health)'s report.

Chief Engineer's Note on the Exe. Engr. (P.H.)'s report.

ssc./10-10.

JK
11/10

In roll *left*

(S)

In duplicate.

pp 37-40 wpa

CHIEF ENGINEER'S NOTE ON THE INVESTIGATION REPORT OF THE MANGALORE WATER SUPPLY SCHEME.

③ The report on the investigation of the Mangalore Water Supply Scheme with Hassamar and Gurpur as sources submitted by the Sanitary Engineer has been examined and the points requiring remarks are dealt with below:-

(1) Rate of Water supply.

^{In 1945} The Mangalore Municipality in 1945 resolved to have a 15 gallons scheme. The proposals accordingly provide for a 15 gallons scheme with 16 hours pumping with the idea that by increasing the pumping hours to 24, the rate of supply could be increased to 22½ gallons per head per day when such increase is found desirable. For an infiltration source, 24 hours pumping should be avoided as sufficient time for recuperation should be allowed. In this case the number of hours of pumping may be restricted to 20 hours, allowing 4 hours time for recuperation. If the recommendations of the Bhole's Committee Report are to be followed, a rate of supply of 25 gallons per head per day at least should be provided but this being an infiltration source with limitations of yield, it is enough if the scheme is designed for a 20 gallons supply with 20 hours pumping to serve an ultimate population of 1,75,000 for Mangalore Municipality. For villages enroute a supply of 5 gallons per capita as assumed in the report may be adopted being rural parts.

(2) Head works.

It is mentioned in the report that a kutchra anicut exists across the river 6 miles above the site of Head works and is intended for irrigation purposes and that the irrigation department is contemplating to construct a masonry anicut at the same site to improve irrigation facilities. The construction of this anicut may have the adverse effect of cutting of flow below the anicut and affect the sub-soil flow at the Head works site. So this will have to be specially pointed out to the Chief Engineer ^(Irrigation) and he should be requested to see that necessary provisions are made in their project to let down sufficient water during summer months to meet the requirements of water supply to the Municipality.

(3) Gallery.

The bottom level of gallery is shown as - 9.5. In the report, it is stated that the lowest summer water level may not go below 0.50. Therefore, the bottom of gallery as proposed will be 10' below the assumed water level. It is desirable that the gallery is taken a few feet ~~more~~ deeper to allow sufficient margin to meet the contingency of the summer water level going down still further during periods with consecutive dry years. consecutive periods with dry years.

(4) Collecting Well.

A water-tight collecting well is proposed at boring No.19. From the C.S.No.4 in San.No.44/46, it is seen that the depth of sandy bed increases towards boring B No.20 and so it seems desirable that the collecting well may also be an infiltration well and at a place between B.Nos.19 & 20.

(5) Connecting pipe.

A 18" size of connecting pipe is proposed between the collecting well and the suction well. For the quantity of water to be drawn through this main viz: 3062 G.P.M. the frictional losses would be about 3.3 ft. which is too much. To reduce the frictional losses to about 1 ft. a size of 22" at least should be provided.

(6) Quality of Water.

The water from the borings in Gurpur river is stated to be yellow in colour and ferric iron is found in suspension. The presence of iron may account for the colouration. The ~~Public Health~~ value of water also varies from 6.0 to 5.7 i.e., the water is acidic. The Director of King Institute is of opinion that some form of corrective treatment and filtration would be necessary to remove the ferric iron in solution. The Executive Engineer (Public Health) has not offered

offered any remarks on the removal of iron but suggested lime treatment and chlorination by the minimal dose method in order to correct the acidic nature of the water. Before the exact method of treatment is decided on it is necessary to find out by analysis the amount of iron actually present. If it is less than 0.1 parts per million no corrective treatment would be necessary except that lime should be added to correct the Public Health value. If it exceeds this quantity, the method of treatment to be adopted is to be decided. In any case some settlement tanks or filters must be provided to eliminate the precipitate formed after addition of lime. A tentative provision of Rs.12,000/- is made for this in the estimate. The adequacy of this amount cannot be examined at this stage as the method of treatment is not decided yet. The treatment works will naturally have to be located at the Head works site or otherwise the pipes may get corroded on account of the acid nature of the water. This requires two stages of pumping (i) from the suction well to treatment works & (ii) from the treatment works to the Town. The Sanitary Engineer may examine this in detail before drawing up the plans and estimates.

(7) Pumping main.

Pumping main of 22" diameter size with 325 ~~B.H.P.~~ B.H.P. pumps at Head works would be more economical than 24" diameter pipes with 290 B.H.P. pumps proposed and may, therefore be adopted.

(8) Gravitation mainn from Double Hill Service Reservoir to Jeppru Service Reservoir.

From the hydraulic level calculations, it is observed that a level of + 120.0 only is taken at Double Hill Service Reservoir for calculating the size of the main from this Service Reservoir to Jeppru Service Reservoir while the hydraulic level of the pumping main at the same place is + 130.00, thus a head of 10' is left out of consideration. If the main below the Double Hill is continued as pumping main instead of gravitation as now done, a 18" diameter pipe line will be sufficient instead of 20" proposed from the Double Hill Service Reservoir to Bus stand Service Reservoir. By this, there will be a saving of about Rs.21,600/-. The pumping main from Bus Stand Service Reservoir to Jeppru may be of 14" as proposed.

(9) Pumping main to Padaow.

The size of pumping main proposed by the Sanitary Engineer is 7" if rural Padaow outside Municipal limits is excluded and 9" if that area also is to be served as a rural area. To serve Padaow Municipal and rural areas a size of 8" main seems to be sufficient and may be adopted.

(10) Booster for serving Light House Hill. Service Reservoir.

A Booster is proposed to be located at Double Hill and the quantity required to the light house Hill Service Reservoir is proposed to be lifted through a 10" main 7,130' long. This long length of 10" pumping main is unnecessary and as the 20" pumping main passes within a distance of 2280 Rft. from the Light House Hill, the booster can be located at B shown in plan San.No.40/46 and 10" main laid therefrom to the Light House Hill for 2280 ft. By this arrangement there would be a saving of Rs.43650/-.

(11) Site for Pumping Station.

The suction well is shown on the border of S.No.37/11-A and 11-B vide San No.42/46. It is desirable that a portion of 11-A also is required.

(12) Pumping Plant. (Composite Scheme)

The Executive Engineer (Public Health) has worked out the pumping capacity assuming a 15 gallons supply with 16 hours pumping. For a 20 gallons scheme with 20 hours pumping and with 22" pumping main now suggested, the pumps should be of 325 B.H.P. capable of pumping 2492 G.P.M. against a head of 230 ft.

(13) Service Reservoir.

The capacities proposed by the Executive Engineer (Public Health) for a 15 gallons scheme and the capacities required for 20 gallons scheme are given below. The latter may be adopted.

	Capacity as per Executive Engineer (Public Health)'s proposal for a 15 gallons scheme - 8 hours storage.	Capacity required for 20 gallons scheme. 8 Hours storage.
1. Double Hill Service Reservoir. (Ground Level)	2.5 lakhs of gallons	3.33 lakhs of gallons
2. Padaow Service Reservoir. (Elevated)	0.75 "	0.82 " (To Serve Padaow including rural Padaow.)
3. Light House Service Reservoir (Ground Level)	1.50 "	2.00 "
4. Bus Stand Service Reservoir (Elevated)	2.50 - "	3.33 "
5. Jeppu Service Reservoir (Elevated)	1.75 "	2.33 "

(14) Distribution System.

As this is a house service connection scheme, the 95 public fountains approved by the Council in Resolution No. 29 dated 17-9-45 may be so located to serve the poorer areas as they cannot afford to have individual house connections.

Distribution to villages enroute.

(a) Of the 12 rural areas enroute, Gурpur and Padaow are proposed to be served by a distribution system with Public taps, while the other 10 villages would be served by Distribution Reservoirs with taps around. In the case of Padaow however a Reservoir is proposed considering its high level. As the tapping for the villages en-route is from a 22" pumping main which runs under a high pressure direct tap connections from the main without the intervention of a Reservoir are not desirable and so Gурpur village also may be served with distribution reservoirs instead of direct taps. The population of the 11 villages excluding Padaow to be served is about 27,000 and may be served by 24 distribution reservoirs of 2000 gallons capacity with 6 taps round each. The allocation of distribution reservoirs may be as follows:-

	U.P.	
1. Kariangala & Pozhali	... 2545	... 3 Nos.
2. Addur.	... 1623	... 2 "
3. Malur and Gурpur	... 3450	... 4 "
4. Tiruvailu.	... 1719	... 2 "
5. Mudushedde	... 1730	... 2 "
6. Pudushedde	... 502	... 1 No.
7. Marakkada	... 1281	... 1 "
8. Kavur.	... 3093	... 3 Nos.
9. Aerebail & Kanchady	... 2166	... 3 Nos.
10. Kadiakhalli		
11. Kadre.	... 4272	... 4 "

		24 Nos.

(15) Cost.

Fresh approximate estimates for alternative schemes 1 & 2 referred to para 17 of the investigation report have been worked out with ref: to the above remarks and are enclosed herewith. The approximate

approximate cost furnished for Scheme 3, remains the same: The relative capital cost and maintenance charges of the 3 schemes are given below:-

	Capital Cost. Rs.	Maintenance Charges. (for 1966 Rs. conditions)
1. Protected water supply to the Mangalore Municipality alone at 20 gallons per head per day from Gurpur source.	46.15 Lakhs.	38,000
2. A composite scheme with Gurpur River source to serve the Mangalore Municipality at 20 gallons per head per day as well as villages enroute at 5 gallons supply.	48.41 "	46,000
3. A scheme utilising Hassamar valley scheme intended to serve 60,000 people at 6 gallons or 2 gallons for the ultimate population of 1,75,000 in addition to the Gurpur River source, as per (1) or (2) above.	Extra over and above schemes 1 or 2 about Rs.9.80 lakhs.	Savings in 1 Rs.3000 and savings in scheme 2 Rs.4000.

In G.O.No.Ms.2934-Public Health dated 3-7-40 sanction was accorded for the preparation of detailed plans and estimate for the Hassamar valley scheme i.e., scheme 3 and also for the investigation of the Gurpur scheme i.e., scheme 1, to serve as a supplemental scheme to the Hassamar valley scheme. It was then considered that there would be savings in taking up the Hassamar valley scheme it being a gravitational scheme. But actual investigation now made had revealed that the ~~yield~~ yield of Hassamar ~~x~~ valley scheme works out to about 2 G.P.M. per head per ~~xxxx~~ day for an ultimate population of 1,75,000 and that for such a small supply, a sum of Rs.9.8 lakhs has to be spent initially while there will be a net savings of Rs.4000 per year (maximum) in maintenance which when capitalised for 30 years at the usual rate of 3½% will be only Rs.74000. Thus financially scheme No.3 is definitely disadvantageous and has to be dropped. As between schemes Nos.1 & 2 it is desirable to adopt scheme No.2 as in that case the several small villages on the way would also get the benefit of protected supply without much addition to the capital cost of the scheme as a whole or without any great expenditure debited to them.

Venkataraman
11.8.67
For Chief Engineer(Highways)

Enclosure:-

1 Approximate Estimate for Schemes 1 & 2.

11/10

S.K.10/10

C.No. 21671H-1/47

45 E.H.C.

W.S. Scheme - Mangalore Mty - Investigation
Report

From the C.E (H), No. 2251-P.W.W/46-14, d/8.10.47

Memo. No. 21671H-1/47-7 P.H.d/4-11-47

A copy of the letter from the C.E(H)

read above together with its enclosures in
original is forwarded to the Commr., Mangalore
Mty. He is requested to obtain and forward
to Govt the views of the M. d. on the proposals of
the C.E. and also to state how the d. proposes
to finance the scheme which it desires to

adopt

21/10/47

46
21/47

26.10.47

27/10/47

To the Commr.
Mangalore Mty
(thru the C.M.C.)

(with copy of pp 35+36 of
investigation report
C.E's note and
plans to be returned
with reply)

Copy to the C.E (Highway)

2. The matter should be treated
as urgent and a reply sent at a very
early date.

46
05/11/47

he received

The South Kanara District Advancement Association,

THE DISTRICT COLLECTOR,
PRESIDENT.

A. B. H. DICKSON, Esqr.,
VICE-PRESIDENT.

FROM RAO SAHIB P. R. R. PUNJA, B. A., B. L.,
SRI T. M. ARANHA,
JOINT SECRETARIES.

J.S. (P.H.)

May be examined.

29/11
M. (P.H.)

RAMA BHAVAN,
CODIALBAIL.

MANGALORE, S. INDIA.

To

The Hon'ble Sri A.B. Shetty,
Minister for Public Health
Fort St. George, Madras.



Dear Sir,

The above Association has constituted various Committees, consisting of leading gentlemen to form study groups to deal with the problems affecting the welfare of the District and relating to various problems.

As a result of the deliberations of the Committee dealing with Public Health, it has been decided to bring to your kind notice the urgent needs of the town of Mangalore to get protected water supply without any further delay and to thank you for giving Mangalore the first place in the priority list, which has allayed public feeling to some extent. But the fact that nothing appears to have been begun yet to put the scheme into motion has begun to agitate the public. The mosquito nuisance is becoming intolerable and filaria and consumption which had been confined to portions of the town have very recently become widespread and have created a great alarm in the public mind. It was thought fit to convey the public opinion to you in the form of the following resolution so that you may do the needful and allay agitation, having begun so well by giving Mangalore the first place in the priority list. His Excellency, the Governor of Madras might have conveyed to you already the state of public feeling in Mangalore regarding the neglect with which South Kanara has been treated by the Provincial Government all along. The favour of an early reply is desired by the members of the Association.

RESOLUTION:- "Resolved to communicate to the Hon'ble Minister for Public Health, that the public of Mangalore view with great concern that no action has as yet been taken by Government to start work in order to provide a

1. AVA 11. AMAD

protected water supply to the town of Mangalore, even in spite of Mangalore having been given the first place in the priority list in response to long, continued, and pressing public demand. Such dire diseases as consumption, filaria and malaria are becoming a public danger, being continually on the increase and now spread throughout the town, and unless immediate action is taken they will lead to widespread public agitation against the indifference shown by Government to the people of South Kanara.

The above resolution speaks for itself and is based on good authority. If only you could take the trouble to look into the representations continually made to the Governors, Executive Councillors, Advisers and Hon'ble Ministers from time to time, when each visited this town, you will find that the demand for drainage and protected water supply has been given the first place. If after giving the first place also nothing is done, public agitation may reach a climax and people lose their faith even in the popular government taking any interest in their welfare simply because South Kanara is so far away from Madras. As being one who is personally acquainted with local condition and in touch with the public mind, it has been thought fit to communicate the exact feeling that prevails here, so that you may do justice and create that feeling of confidence in the Cabinet of a popular government so essential, for the welfare of the province as a whole.

I have the honour to be,
Sir,

Your most obedient servant,

Manganatha Pooji

*Hon'g. Secretary St. Advancement Association
S. Kanara.*

Urgent
C.No. 21671 H-1/47

W.S. Scheme - Mangalore City - Investigation
report

Memo: No. 21671 H-1/47-8 P.D. 6-12-47

The Commr., Mangalore City,
is requested to expedite his reply to
Govt. Memo. No. 21671 H-1/47-7 B.H., of 4-11-47.

To the Commissioner
Mangalore City
(thru the Chairman,
M.C.C.)

2/12/47 14/12
2/47

26/12/47

9/12/47

47 LSH(H-1)

J.S.(P.H.)

The requests made^{TC}
in these resolutions
may be considered.

and
4.12.47
H.M.(P.H.)

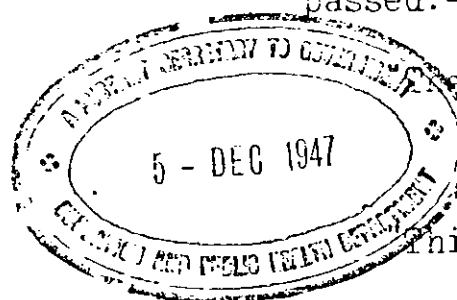
From

THE HONOURABLE MINISTER FOR PUBLIC HEALTH

GOVERNMENT OF MADRAS,
MADRAS.

The Secretary,
Rate-payers' Association, Mangalore.

At a public meeting of the citizens of Mangalore
held on 28-11-1947 with Mr. B. Vaikunta Baliga B.A., B.L.
presiding, the following resolutions were unanimously
passed:-



The Public of Mangalore hereby urge the Government
to expedite the introduction of the Protected
Water Supply Scheme and the underground drainage
scheme in the town."

This meeting is of the opinion that in view of the
deteriorating health position, the mosquito
menace, and the alarming increase in the incidence
of filariasis in the Town these measures should
be introduced immediately even though they in-
volve an increase in the taxes."

A copy of these Resolutions be sent to the Honour-
able Minister for Public Health with a request
to depute the Surgeon-General, the Director of
Public Health and the Sanitary Engineer to visit
Mangalore at a very early date to finalise the
Schemes."

"Copies of the Resolutions may also be sent to the
Municipal Council. The Collector of South Kanara
and to other appropriate quarters."

(Resolutions were moved by Rao Bahadur Dr. M. Keshava Pai,
C.B.E., M.D., and seconded by Sri K. R. Achar,
B.A., LL.B.,).

* * * *

In forwarding the above resolutions which express
the urgent needs of our Town, may I be permitted to hope
that you will kindly take an interest in the matter and
do all that could be done and urgently too.

Thanking you,

I remain, Sir,

Your obedient servant,

D. N. Mahan Rao
Advocate
S. K. Street.
Secretary.

Mangalore,)
1-12-1947.)

1/P 53-56 same
into 22 pp 47-49 ante 53-
ment Association,
RAMA BHAVAN,
CODIALBAIL,

JOINT SECRETARIES.

MANGALORE, S. INDIA.

8 - DEC 1947

To. The Honble Secy A.B. Shetty

Minister for Public Health
Freet. St.

Fort. St. George

Madras

The end was 11:30 4/16/16

Dear Sir,

The above Association has constituted various

Committees, ~~consists~~ consisting of leading gentlemen to form study groups, to deal with the problems affecting the welfare of the district and relating to various problems.

As a result of the deliberations of the Committee dealing with Public Health, it has been decided to bring to your kind notice the urgent needs of the town of Mangalore to get protected water supply without any further delay and to thank you for giving Mangalore the first place in the priority list, which has allayed public feeling to some extent. But the fact that nothing appears to have

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Even began yet to put the scheme into motion has begun to agitate the public. The mosquito nuisance is becoming intolerable and, filaria & consumption which had been confined to portions of the town have very recently become widespread & have created a great alarm in the public mind. It was thought fit to convey the public opinion to you in the form of the following resolution so that you may do the needful and allay agitation. Having begun so well by giving Mangalore the first place in the priority list. His Excellency, the Governor of Madras might have conveyed to you already the state of public feeling in Mangalore regarding the neglect with which S. Kanara has been treated by the Provincial Govt. all along. The favour of an early reply is desired by the members of the Association.

Resolution :- "Resolved to Communicate to the Honble Minister for Public Health, that the public of Mangalore view with great concern that no action has, as yet been taken by Govt. to start works in order to provide a protected Water Supply to the town of Mangalore, even in spite of Mangalore having been given the first place in the priority list in response to long continued and pressing public demand. Such dire diseases as Consumption, Filaria, and Malaria are

The South Kanara District Advancement Association,

THE DISTRICT COLLECTOR,
PRESIDENT.

A. B. H. DICKSON, Esqr.,
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SRI T. M. ARANHA,

JOINT SECRETARIES.

RAMA BHAVAN.

CODIALBAIL.

MANGALORE, S. INDIA.

becoming a public danger, being continually on the increase and now spread throughout the town, and unless immediate action is taken they will lead to wide spread public agitation against the indifference shown by Govt to the people of South Kanara.

The above resolution speaks for itself and is based on good authority. If only you could take the trouble to look into the representations continually made to the Governors, Executive Councillors, Members and Hon'ble Ministers from time to time, when each visited this town, you will find that the demand for drainage and protected water supply has been given the first place. If after giving the first place also nothing is done, public agitation may reach a climax and people lose their faith ^{even} in the popular Government taking any interest in their welfare simply because South Kanara is so far away.

from Madras. As being one who is personally
acquainted with local conditions and in touch with
the public mind, it has been thought fit to com-
municate the exact feeling that prevails here, so
that you may do justice and create that feeling
of Confidence in the Cabinet of a popular Govt.
so essential, for the welfare of the Province as a whole.

I have the honour to be
Sir,

Yours most obedient servant

Mangamathu Puri

Forwarded

Forwarded to
C. S. K. N. —
29/11/47.

Ref: C5/1405/47.

Dec 2/47

Municipal Office, Mangalore,
dated the 2nd December, 1947.

From

Sri M.Narayana Shenoy, B.A., B.L.,
Commissioner, Mangalore Municipality, Mangalore.

To

The Secretary to Government,
Education and Public Health Department,
Fort St. George, Madras.

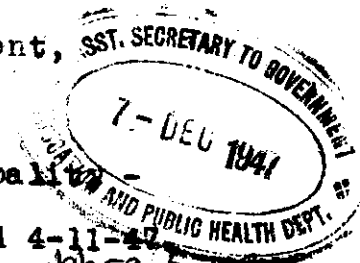
Thro'

Sir,

The Chairman, Municipal Council, Mangalore.

Sub: Water supply scheme - Mangalore Municipality
Investigation report.

Ref: Govt. Memo. No. 21671-HL/47-7, P.H., dated 4-11-47.



I submit a copy of the Council's Resolution No. 87 dated the 29th November, 1947 on the above subject for your kind information and urgent action.

The Council is willing to raise the rate of water tax by so much as may be necessary in the opinion of the Government to meet the annuity on the loan which the Council will have to take to meet its share of the cost of the scheme.

I request the Government may be pleased to sanction the scheme early.

Forwarded

M. Gangadhar Das
Chairman, M.C.

Encl: One.

Copy to the Inspector of Municipal Councils and
Local Boards, Old High Court Buildings, First Line Beach, Madras I.
Copy to the Collector of South Kanara, Mangalore.

V/4-12-47.

[Signature]

Extract from the Proceedings of the Municipal Council, Mangalore, dated the 29th November, 1947.

READ: C5/18699/47 - Government Memorandum No. 21671-41/47-7, P.H., dated the 4th November, 1947, communicating copy of the Chief Engineer's remarks on the investigations report of the Mangalore water supply scheme made by the Executive Engineer, (PH) Southern Circle, and requesting the views of the council in the matter as to how the council proposes to finance the following schemes:-

	Capital cost. Rs.	Maintenance cost Rs.
1) Protected water supply to the Mangalore city alone at 20 gallons per head per day from Gurupur source.	46.15 lakhs.	38,000/-
2) Protected water supply from Gurupur source serving Mangalore city at 20 gallons per head per day as well as villages enroute (12 villages) at five gallons supply.	48.41 lakhs.	46,000/-
3) A scheme utilizing the Hassamar Valley source intended to serve 60,000 people at six gallons or two gallons for the ultimate population of 1,75,000 in addition to Gurupur River source (as per 1) or 2) above).	Extra over & above scheme 1 & 2 about Rs. 9-80 lakhs.	As this is a gravitation scheme the hours of pumping will be reduced correspondingly in items (1) & (2) & hence the savings. Savings in scheme (1) & (2) will be Rs. 3,000/- & in scheme (3) will be Rs. 4,000/-

and the Chief Engineer's recommendation recommending No. 2 scheme. Also his request to Government for sanction to execute the 1st stage of the scheme (to execute a tentative length of gallery say about 1,020 feet and extending from boring No. 19 to Boring No. 5 as a first stage of execution, conduct, full power tests, and then decide the exact length of gallery required) in advance of the preparation of detailed plans and estimates, with Commissioner's suggestion that the Government may be requested to approve of the Chief Engineer's proposals and to request Government for half grant and half loan for meeting the cost, the council agreeing to increase the water tax to such level as Government may consider necessary to advance the loan.

Rep. No. 87, dated 29-11-47.

This Council agrees with the recommendation of the Chief Engineer that the composite scheme with the Gurupur River source to serve the municipality and the villages enroute be adopted and requests Government that as suggested by the Chief Engineer, the construction of a suitable gallery as a first stage, be sanctioned. This council further requests that the scheme be financed on the usual half loan and half grant basis, the Council agreeing to raise the rates suitably to enable it to pay the annuity.

Resolved that Government may be requested to immediately start acquisition proceedings under the Land Acquisition Act for acquisition of private lands required for the scheme.

Resolved that Government be requested to supply bulk

C.No 21671H-1/W

Letter No 21671H-1/W - 9482/15/12/4/ CH H(H-1) 61

To The Honorary Secretary,
The South Kanara St. Advancement Association,
Rama Bhavan, Codialbail,
Mangalore.

Two drafts

Sir,

Sub: W.S. Scheme for Mangalore city.

With reference to your letter dated, to
the Hon'ble the Minister for Public Health, I am
to state that the investigation report for a W.S.
Scheme for ^{the} Mangalore City, received from the
Chief Engineer was referred to the M.C. Mangalore
for its view. The M.C.'s reply ^{has just been} received
recently. Necessary further action is being
taken in the matter.

pp47-48 c/f

pp57-60 c/f

11.11.11/11
11.12/24

Y. O. S.
P. T. O. p. 20/11

W.S. - Mangalore City - Investigation report.

From the Commr., Mangalore City,

Ref: CS/1405/47 d/2-12-47

Memo: No. 21671 H-1/47-10 P.H. d/15-12-47

p57et

[Signature]

The Commr., Mangalore City,
is requested to return the enclosed sent
with Govt. Memo: No. 21671 H-1/47-9 P.H.,

p45et

d/4-11-47

[Signature]
11-12-47
11-12-47

[Signature]
126 (enclosed) 11/12/47

[Signature]
16/12/47
To the Commissioner
Mangalore City
(thru the Chairman,
M.C.)

C5/1405. - 47.

Municipal Office, Mangalore,
dated the 11th December 1947.

From

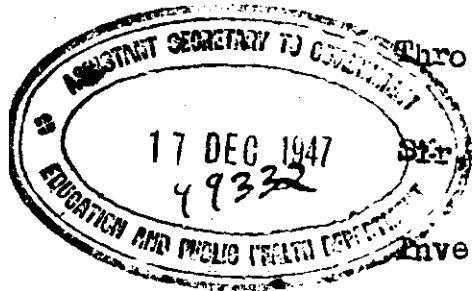
Sri M. Narayana Shenoy, B.A.B.L.,
Commissioner, Mangalore Municipality,
Mangalore.

To

The Secretary to the Government of Madras,
Education & Public Health Department,
Madras,

Through

The Chairman, Municipal Council, Mangalore.



Sub: Water supply scheme -- Mangalore Municipality --
Investigation report.

Ref. Government Memorandum No. 21671-H1/47 - 7 P.H.,
dated the 4th November 1947.

17/12/47

In continuation of my letter Ref. C5/1405-47, dated the
2nd December 1947, I am herewith submitting the original
records pertaining to the above subject.

*Ref. letter
19 file*

Forwarded

M. Gangadhar Das

Chairman, M.C. in-charge.

Commissioner
Commissioner

Encls: Page Nos.

H/11-12-47. compd. *[Signature]*

E.P.H(H-1)

W.D - Mangalore city - Investigation report.

From the Commr., Mangalore city, No.

CS-1405/47 d/11-12-47.

Memo. No. 21671 H-1/47 - 12 P.D. d/22/12/47

13mk

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2 2 1 2

The plans sent to the
Commr., Mangalore city, with Govt
Memo. No. 21671 H-1/47 - 7 P.H, d/4-11-47
have not been returned. He is
requested to return them at an early

p45ante

date.
18/12/47
18/12/47

18/12/47

to the Commr.,
Mangalore city
(thru the Chairman,
M.C.C.)

Note. The main file on the subject was
sent to L.A. / P.W.D / Fin on 15/12/47.

18/12/47
18/12/47.

18/12/47

Very Urgent.
Ref: C5/1405/47.

Municipal Office, Mangalore,
dated the 9th January, 1948.

From

Sri M.Narayana Shenoy, B.A., B.L.,
Municipal Commissioner, Mangalore.

To The Secretary to Government,
Education and Public Health Department,
Fort St. George, M a d r a s.

The Chairman, Municipal council, Mangalore.

Subject: Water supply - Mangalore municipality - scheme for.
Ref: Govt.Memo.No.21671-H1/47-12, P.H., dated 22-12-47.

The plans relating to the above received with government
Memor.21671-H1/47-7, P.H., dated 4-11-47 are resubmitted.

Forwarded

Chairman, M.C.

V/9-1-48.

Commissioner.

Encl: One bundle of plans.

EXP H(H-1)

The main file on the subject was
sent to LA / PWD / Fin. on 15/12/47. The depts.
were reminded on 31/1/48 and 17/1/48. The
return of the file may be awaited till 2-2-48

~~19~~
23/1/48 / 4
23/1/48

~~27.1~~ rel

C.No. 21671 H-1/47

Exp. H-1/47

Water-Supply Scheme - Mangalore Municipality -

p57 ef From the Commr, Mangalore Mty, Ref. CS/1405/47
2/2-12-47

of m. schin

Memo: No. 21671 H-1/47-15 B.H., 2/7/2/48

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The share of the cost of the Municipal Council, Mangalore, for the Composite w.s. scheme with Gurspur river source to serve the Mangalore Municipality and the villages enroute is Rs. 24.205 lakhs to instal, and Rs. 46,000 per annum to maintain. The B.E. for 1947-48 under the water supply and drainage account of the Mangalore Municipality is expected to close with a balance of Rs. 45,109 only. The cl. will, ~~have~~ therefore, have to go in for a loan to meet its share of the cost of installation of the scheme. The annuity on a loan of Rs. 24.20 lakhs repayable in thirty annual instalments at with interest at $3\frac{1}{4}$ p.c. p.a. is Rs. 1,27,489. In addition to this, the cl. will have to meet the maintenance charge of Rs. 46,000 per annum. The cl. will thus have to find a sum of Rs. 1,73,500 (in round figures) per annum to finance the water supply scheme. The cl. is now levying w. and d. tax at two per cent per annum and which yields an income of Rs. 35,780. In order to finance the w.s. scheme, the cl. will have to raise the rate of water and drainage tax from two per cent per annum to eleven per cent p.a. If this is done, the

Total rate of property tax in the Municipality,
will be 26 p.c. p.a.

pl'n f

2. The Commissioner, Mangalore
Municipality, is requested to place the
matter before the C. and to ascertain and
report ~~whether~~ it is willing to raise the
rate of tax as suggested above.

(at an urgent meeting
called for the purpose)

(report urgently where
the C.)

Report
14
4/28

5/1/28

6/2/28

To the Commissioner
Mangalore Municipality
(thru the Chairman,
M. C.)

" " C. E. (Highway)
Despatched
7/2/28

Very Urgent.
Ref: C5/1405/47.
From

Municipal Office, Mangalore,
dated the 17th February, 1948

Sri M. Narayana Shenoy, B.A., B.L.,
Commissioner, Mangalore Municipality, Mangalore.

The Secretary to Government
Education and Public Health Department, Fort St. George, Madras

Thro'

The Chairman, Municipal council, Mangalore.

Sir,

Sub: Water supply - Mangalore Municipality.

Ref: Govt. Memo. No. 21671-H1-47-45, P.H., dated 7-2-48.

In its resolution No. 92 dated 14-2-48, the council has resolved that it is prepared to raise the water supply and drainage tax from 2% to 11% to meet its share of the cost of installation of the water supply scheme. A copy of the council-res. No. 92 dated 14-2-48 is enclosed.

Encl: One.

22 FEB 1948
Commissioner.

Copy to:

The Chief Engineer
V/17-2-48.

Forwarded

Chairman, M.C.

Extract from the Proceedings of the meeting of the Mangalore municipal council, Mangalore, dated 14th February, 1948.

Read:

C5/1405/47 - Govt. Memo. No. 21671-H-1/47-15, P.H., dated 7-2-48 stating that as the council will have to go in for a loan of Rs. 24.2 lakhs to meet its share of the cost of installation of the water supply scheme it will have to raise the rate of water and drainage tax from 2% to 11% per annum in order to finance the scheme and calling for the views of the council.

Resolution: "The council is prepared to raise the water supply and drainage tax from 2% to 11% to meet the council's cost of installation of water supply scheme".

(sd) B. Changanahar Das,
Vice-Chairman, etc

(True copy).

Municipal Office, Mangalore, dated
the 17th February, 1948.

V/17-2-48.

Commissioner,
Mangalore Municipality.

APK

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of

1/27/42

REPORT ON THE INVESTIGATION OF A SCHEME OF WATER

SUPPLY FOR MANGALORE MUNICIPALITY

Introduction:-

1. Mangalore is one terminus of the Broad Gauge Section of the Southern Indian Railway, connecting Madras - 556 miles by rail. It is a growing town of historical, commercial and religious importance in the West Coast of the Madras Presidency. It is the headquarters of the South Kanara District with all the allied public offices. There are four Colleges of which two are exclusively for women and a number of high schools, serving the educational requirements. Bus routes radiate to all the important places of the district and there are regular direct bus services to Mysore, Mercara, Calicut and to places in the Bombay Presidency on the Northern border. Sea borne traffic is being carried on through country crafts with tonnages of 400 and below, to Bombay, Karachi and some Arabian ports. The main local industry is the manufacture of 'Mangalore Tiles' in over 31 factories besides other industries such as coffee and cashewnut curing works, industrial workshops and weaving.

Extent:-

2. This town is one of the oldest Municipalities of this Presidency and covered an area of 4.46 sq. miles prior to 1908, and 5.35 sq. miles subsequently. The Municipal limits were further extended to 7.90 sq. miles as per G.O.901 L.A., dated 23rd January 1943, including portions of the adjoining villages. The old 8 wards and the recent extensions are now sub-divided into 33 electoral wards.

Physical Features:-

The town /
Which easily drain
away the storm
water. The valley

3. The general slope of the town is from East towards the Arabian Sea, on the west. It lies between the Netravati and Gurpur Rivers, and a sand bar which is outside the Municipal limits separates the sea from the shallow back-water at the confluence of the two rivers. The greatest length north to south is 4 1/2 miles, and East to West 3 1/2 miles. The Town comprises of a series of ridges and valleys are fairly level and flat where paddy is grown. The soil and subsoil and the coastal area is generally fine sand while the interior it is gravelly overlying disintegrated rock and laterite. The laterite rock which is a feature in the whole of the district is reported to contain Ferric Iron in varying degrees. The following are some prominently elevated points within Municipal limits in ft with their levels above M. S. L.

(1) Light House Hill (175.0), (2) Balamatta Church (165.0)
(3) Collector's Quarters (158.0), (4) Double Hill (150.0)
(5) Mangaldevi Katta in Jeppu (80.0), (6) Mijarkar's Hill in Bijai (150.0), (7) Kankanadi Church near Sonterpatta (117.0).
The Padanw Plateaux on the Eastern Side of the Town has levels ranging from 200.0 ft to 250.0. Portion of this area is within Municipal limit comprising of the Suburb of Kulsekhar, and the rest forms the rural portion of the Padanw village (which has been included in the list of villages requiring water supply Mangalore (except in the congested Bundar area) is generally an ideal garden City over undulating country and for an aerial observer, the town will present nothing but a profuse growth of Coconut Palms and Mango Trees. The highest and lowest Tide Level are 6.5 and 0.20 and they generally occur twice a day as is seen from the Port Department Records. Both the Netravati and Gurpur Rivers are tidal for about 12 miles an inland, upto which they are always navigable and the surface water in these

reaches has varying degrees of salt salinity according to the tide levels.

Rainfall :-

4. The South Kanara District has the full benefit of mainly the south-west monsoon which generally breaks out early in June each year. The rainfall is the heaviest in the Western Ghats region diminishing gradually towards the coastal belt. As per Statement enclosed (Appendix I) the mean annual rainfall - average of the years from 1906 to 1945 - is about 138" with an average of 119 rainy days (4-5 days in a week with more than ~~inches of rain~~ during the year. The maximum rainfall recorded day day during the above 40 years was 8.70 inches on 4th July 1933. The year 1941 was one of very low rainfall with only 84.90", while 89" also seems to have been recorded prior to 1906. 1943 was a very favourable year, with 170.13" in the above 40 years. The rainfall from June to August (3 months) is 58.14" i.e., 76 % of the annual total while in the 3 months from September to November it is 21.72" or 17 %. The Balance of 7 % is distributed over the remaining 6 months.

Existing Water Supply and Drainage :-

5. The main source of drinking water for the whole town at present is from wells which invariably have fresh water. In spite of heavy rainfall the subsoil water table goes down rapidly during the summer months partly due to the steep slopes of the country towards the sea and partly due to the porous nature of the soil and subsoil. The precipitation of 76 % of the total rainfall within a short period of 3 months is also another factor contributing to the inadequate recharging of the subsoil water table. Some of the wells in the higher regions are as deep as 50' and these dry up first. Though wells in the valleys do not dry up they cannot be depended upon for constant supply. Some of the springs in the valleys are perennial, but as they emerge from built up and populated areas, and pass through unimproved lands, they are heavily polluted and unfit for safe human consumption. There are a few ponds such as Gollanekere and Yammehere which cater to the non-domestic needs but these get dried up during summer :-

The Bunder area near close to the sea is arid and is very thickly populated. The wells in this area contain water of very poor quality and samples of water on analysis at the King Institute were condemned. As per figures furnished by the Municipal Health Officer, Mangalore, the average annual mortality due to water borne causes is 0.23 % of the total population, i.e., one man for every 100.

Source of the Post :-

6. The question of a protected water supply scheme for Mangalore was under consideration from as far back as 1915. Several sources in the vicinity of the town such as Anbigudi, Mahathi Hills, Lalaj and Abare Springs, Alape Tank, Railway Valley, Kadri Hills, Leppu and Nagar, Netravati River were considered but found not feasible for a growing town like Mangalore. But in 1921 the investigation of Hassanur Valley Scheme was completed and sanctioned in G.O No. 1162 M, Mis, dated 7th July 1927, except for detailed investigation of the like of Gravitation main and distribution system in the town. It was to be a gravitation scheme then estimated to cost Rs. 9 lakhs to install and Rs. 4500/- to maintain annually. An earthen dam of about 50' height was to be constructed across the valley just at about the site of the existing Pulikolan Tank and to impound run off from a catchment area of 2500 acres only. The potentiality of the scheme was to give supply to 10,000 people at 6 gallons per head per day with a possibility of slightly increasing it by tapping the seepage also in rear of the proposed dam.

Further investigation ordered.

P.T.O.

Further Investigation Order :-

7. Much No progress was made for 8 years until at the request of the Council, the Deputy Sanitary Engineer (Southern & Western) circle inspected the locality and based on it, it was reported in Sanitary Engineer's No. 465 C, dated 23rd May 1939, that (1) Hassamer should be one of the sources costing about Rs. 9 lakhs initially with Rs. 4,500/- as maintenance charges and (2) Ghurpur River source is to be investigated for a supplementary source approximate initial cost being Rs. 5 lakhs, with Rs. 19,500/- as annual maintenance charges. Both the sources if put together were to supply an ultimate population of one lakh of people at 15 gallon per head per day. The Government in G.O No. 2934 Education & Public Health, dated 3rd July 1940, ordered the investigation of (1) the alignment of the Gravitation Main for Hassamer Valley source at a cost of Rs. 700/- and (2) the Ghurpur River source at a cost of Rs. 4,300/-.

Investigation Done Now :-

8. Giving due consideration to the place assigned to Mangalore in the Priority list, the field work on the investigation was taken up on 16th March 1945, and continued upto 18th July 1945, when on account of the heavy monsoon conditions in the locality, the work had to be suspended. It was resumed on 20th January 1946, and closed on 4th April 1946. Due to interruption in work for the monsoon the investigation estimate had to be revised, and for reasons of increased dearness allowances etc., to Rs. 2,250/- which was approved in G.O No. 978, Public Health, dated 7th February 1946. The expenditure incurred on the investigation is about Rs. 7,450/- the excess being mainly due to the increased average pay of the Supervisor and the war allowances admissible to the estimate, as ordered in G.O No. 164, dated 18th January 1946.

9. Complete field investigation for water supply scheme with source from the Ghurpur river near Adur village, including levels etc., for the pumping main, about 10 miles long, and for the distribution system in the whole town, for about 50 miles, besides block levels for the alternative site of Service Reservoirs was done. Additional particulars for the Hassamer source with the river source were also gathered and levels etc., for the Gravitation Main, filtration works etc., taken.

10. 46 borings totalling in all 1305 ft. were put down in the bed and banks of the Ghurpur river from about 2 1/2 miles above the Ghurpur Road, Lattice Girder Bridge upto Pushali Hamlet of Kariyagala Village - Vide plan No. 44/42/46. The sections of these borings reveal presence of a sandy stratum of varying depths below river bed levels (from 30' to 40' ft.) vide plans (L.S. and C.S. of borings No. 44/1946). The grade of sand also varies mostly from medium to fine, though in some borings the sand is fairly coarse and mixed with pebbles at certain levels. Borings Nos. 26 to 28 on the left margin and Nos. 22 to 24 on the right margin were specially put down to see if the sandy layer in the river bed portion extends adequately to the sides also. The left margin is encouraging in this respect.

11. Results of yield tests conducted in some of the borings at different levels are given in Appendix II. The yield from these 6" diameter borings varies from 6 g.p.m. for 1'-0" depression to about 0.7 g.p.m., for a depression of 4 1/2 feet according to the nature of sand met with at the particular layer tapped. The yield is generally satisfactory whenever the Uniformity Coefficient is

is between 2 and 3. It is about 4 g.p.m., for a depression of 2' to 3' from the sandy layer 10' to 12' below summer water level and this may be considered encouraging enough.

12. Quality of Water :-

Samples of the water from some of the borings, besides surface water of the river during the summer and during floods were got analysed at the King Institute, Madras. The results are tabulated - vide Appendix. The Director of King Institute has declared the ground water at borings No. 5 and 33, to be quite good chemically and bacteriologically - vide Appendix III and Copy of his letter dated 8th April 1946 enclosed. The bacterial quality of the ground water is bound to improve after prolonged pumping during regular use of the source. As the ~~Biochemical~~ ^{Public Health} value of the water shows it to be on the acid side, lime treatment will be necessary, before pumping and also chlorination by the minimal dose method.

13. In boring No. 1, about 2 1/2 miles, above the road bridge salt water was met with at 12' below surface water level, down to 22 30'. On local enquiry it was learnt that during the highest tides in the sea, the salt water backs up to the hair pin bend in the river (Point A on plan *See No 41/1946*). In boring No. 10, about 12 miles above boring No. 1, the quality of the water is good enough, chlorides content being 2.5 parts per 1,00,000. The line of infiltration gallery proposed starts only at Boring No. 19, about one mile further upstream and so the ground water there would be free from salinity.

Potentiality of Gundur River Source :-

14. The river has a catchment area of about 207 sq. miles above the Lattice Girder Bridge at 2 1/2 M.S. in the Mangalore Karkal Road. It has its source on the western slopes of the Western Ghats near Agumbe. After a winding course of about 25 miles upto the bridge it empties itself into the sea after flowing further for a distance of 14 miles at its confluence with the Netravati River near Mangalore. The average surface fall during M.F.L. conditions is 1.89 ft. per mile. The M.F.L. of 1933 was the highest in the living memory which was 5 to 6'-0" higher than the ordinary M.F.L. the margins on either side gets submerged by 4 or 5 ft. under water; such conditions continuing for about 10 days even.

15. There is a Kutcha anicut across the river at Kilinjara Village and two contour channels each about 3 1/4 miles long take off just above the anicut one on either side bank. The present area under this anicut is 2,200 acres of 1st crop, 1,600 acres of 2nd crop and 500 acres of 3rd crop wet lands. The 3rd crop season is generally from March to May. The river is reported to be perennial at this site and the flow on 27-3-46 (which was the worst season) was 5 cusecs. Rock is met with at 2 to 3 ft. below river bed. Down stream to of the anicut there are a number of piscotah stands on either banks of the river through which water is being baled out to supplement the irrigation of the 500 acres of the 2nd crop in summer months. This contributes most to the reduction of summer flow in the river below the anicut to some extent.

16. Contemplated extension of Irrigation :-

It is understood that there is now a proposal by the Irrigation department to construct a water-tight masonry anicut at the site of the existing old anicut and to improve and

improve and extend irrigation so as to increase the total sown to 3000 acres of 1st crop, 3000 acres of 2nd crop and 1500 acres of 3rd crop. This will have the effect of almost completely cutting off the seepage flow below the canal in summer at a time, when water would be badly needed for the town supply. No storage reservoir is understood as being contemplated in the above proposals for extension of irrigation. The need for adequate provision in the proposed irrigation scheme, to let down sufficient quantity of water in the summer months for the town water supply has to be pointed out to the Irrigation Branch so that the scheme may be designed of the water required.

17. Present Proposals :-

(2) Three alternative proposals are put forward :-

(1) Protected water supply to the present Mangalore Municipality alone at 15 gallon per head per head day from the Gurpur River source; (2) A composite scheme with Gurpur River source to serve the Municipality as well as the villages in the vicinity and along the route of the pumping main; (3) A scheme utilising the Haseemmar Vally source in addition to the Gurpur River source.

18. Proposal No. 1 :-

Population :-

Appendix IV is a curve showing the growth of the population from the year 1871. The ration figures on 30th June 1945, for the present Municipality is 1,17,144, but as per census it is only about 1,05,000 (vide curve). The excess of 12,144 i.e., 10.95 % represent the inflated population due to the unusual conditions created by the war. For the purpose of working out the figures for the future decades, this excess may be ignored as such conditions are only temporary. As per curve and Director of Public Health formula the rate of increase per decade works out 14.95 %. Applying this figure to the total of 1941 population for the present Municipality i.e., 89,000, the population for 1951 works out 1,11,000 and for 1961, it is 1,26,000.

19. Daily requirements of Water Supply :-

The Municipal Council, Mangalore in its resolution No. 55, dated 11th June 1945, decided to have a fifteen gallons per person per day scheme for the whole town. Assuming 15 Hours pumping as usual the source should be capable of yielding 2736 gallons per minute to serve the ultimate population in 1961. By increasing the hours of pumping upto 24, it may be possible to increase the per capita supply to 22 1/2 gallons when the ultimate population is realized. This rate would compare favourably with the figure of 25 to 30 gallons, recommended by the House Committee.

20. The Handlocks for the scheme :-

This is proposed to be located in the narrow band of Gurpur River near the boundary between Tenku Ulipudi and Karionkala Village limits 6 miles below the Kilinjir point mentioned in para 15 above. The catchment area of the river at this site is 240.5 sq. miles. The summer Water Level during the investigation was + 1.30. The surface flow in the river by the end of May 1945

1945 was about 3 cusecs while in 1946, which was a drier year and perhaps the driest till now, the flow fell from 9.38 cusecs on 26th February 1946, to nil on 28th March 1946. Local reports show that though the surface flow stops, the mudgus in the river near the headworks site never gets dried up. Even during the worst year the summer water level may not go below + 0.80 i.e., about $4\frac{1}{2}$ ft. below average bed level near boring No. 19. Due to the varying grades of sand met with and the widely fluctuating rate of yield from the borings it is not possible to assess beforehand the exact length of gallery needed. It is therefore essential to execute a tentative length of gallery about 1,020 ft. (from boring No. 19 to No. 5), as a 1st stage of execution and conduct full power tests therefrom. The exact length of gallery needed can be decided thereafter, the extension being along the line of borings 5, 37, 11. Construction of an experimental well and conduct of yield test therefrom, as part of the detailed investigation was not done as it would not be quite helpful in this case, as reported in Military Engineer No. 1152-4/W.S., dated 16th October 1945.

21. GALELLERACHA GALLERY :-

The ultimate requirements of water supply to Mangalore town can be developed from an infiltration gallery of adequate length in the bed of Gurpur River, along the line of borings 19, 29, to 33, 5, 37 and 11 (vide plan *San No. 42/1946*) the bottom of gallery pipes being about 15' below bed level so that the gallery may not get damaged during high floods.

22. Connecting Pipe Line :-

From the collecting well to be constructed at the downstream end of the gallery at B. 19, water will be led to the suction well proposed in survey No. 37/9, of the Kalligudi Villages on the Right Bank of the river in the direction of Boring No. 21 through a connecting pipe of about 485 ft. length.

23. Pumping Station :-

The M.F.L. of 1933 at this site was 87.6. The Ground Level of S.No. 37/9, (area 9.78 acres) is 14.7 and that of S.No. 37/11.B, situated close to the spur of a hillock (extent 1.32 acres) is 87.7. These numbers will be acquired and the pumping station quarters for the Headworks staff, store room, telephone room, venturi meter room, latrine etc., located on ground suitably raised so as to be unaffected by M.F.L. in the river.

24. Pumping Main :-

Due to the broken and difficult nature of the terrain between the headworks and the town, the pumping main has to be aligned along a circuitous route as shown on plan No. *San. 4/1946*. The distance from headworks to the proposed Service Reservoir at Double Hill within Mangalore Municipality as per Longitudinal Section taken is 54,939 ft. of which about 22,000 ft. is through pattah lands which have to be acquired for a width of say 15 ft. The line runs through the Tankutandi, Adduru, Mulur, Tirukkail, Hudushadde, Padushadde, Marukodi, Kavar, K Darsaid, and Kudial-baid villages, along the Mangalore-Gurpur Road between mileages 5/4 and 5/2, and Mangalore-Bajpe Road between mileages 5/6 and 5/5, which are in the above village limits.

Between L.S. 11,000 to 11,560 the main line to cross the Gurpur River and will be taken along the Lattice Bridge which is sufficiently above M.F.L. The pumping main is proposed to be of 34" diameter C.I Pipes R.C.C. The level of the Bangalore-Bijapur Road, between mileages 5/2 and 6/4 is from 170.0 to 183.0. To take the line fairly below the hydraulic gradient, on average cutting through the ridge for a length of 900 ft and depth of 25 ft. in hard gravelly soil, may be necessary.

25. Service Reservoir :-

The configuration of the town is such that it cannot be economically and efficiently served from a single service reservoir. The town may be divided into five zones for the purpose of efficient distribution of water supply.

(i) Dodda Hill :- This is in Formbake T.S. No. 1554, of Ward No. 1, and an extent of about 5.0 acres is available. Ground Level ranges from 85.0 to 160.0 along the slope of the hill. Soil and subsoil is hard gravel. Besides a Service Reservoir of 2 1/2 lakhs gallon capacity and booster station (vide item below) the quarters for the Water Works staff & water supply lachas stores, etc., can all be housed here. This Reservoir with L.W.L. at about 120.00 will serve the Hennagala, Portlandpettah and the Extension of Schar Gumbail, Kukur, Kodanahalli and two portions of Kaire.

(ii) Dasikond Service Reservoir site :- Extent available is 130 ft. North to South and 110 ft. East to West, capacity will be about 2 lakhs of gallons. Ground Level varies from 78 to 89.0 L.W.L. of Reservoir may be about 105.0. Soil is gravelly. The site is Municipal property acquired for Unlighithlu Town planning scheme. The Municipality was advised to defer its disposal in Sanitary Engineer's No. 1808-1/48 No., dated 31-1-48. This will serve the Basar area, Collector's Office area, and Shediguda.

(iii) Light House Hill :- The site selected is on the Formbake portion of T.S. 150 to the east of "Tippu Sultan's Tomb". Extent to be alienated by the Revenue Department being 300' X 200'. Ground Level varies from 172.0 to 177.0. Soil and subsoil is gravel and laterite. A reservoir of 12 lakhs gallons capacity with L.W.L. 175.0 will serve the high level areas of Palur, Kankunalli, portions of Kukri, Bandoor Road and etc. An alternative site is the Bangalore Club Compound was examined as desired by the Municipal Chairman. Apart from the question of cost involved in land acquisition this alternative site is not feasible for technical reasons also as the Ground Level is very much lower than the other site.

(iv) Jappa S.R. Site :- This is near Manjaledevikatta. Plot 230' X 210' has to be acquired in T.S. No. 304 - a private property owned by the Lord Bishop of Bangalore. Proposed reservoir with L.W.L. 190.0 and capacity 1.75 lakhs gallons will serve "Jappa" area comprising the southern portion of the town.

(v) Palur Service Reservoir site :- Portions of S.No. 58/3A(1) of Kaire with Ground Level 119.0. Soil is hard. Proposed reservoir of capacity 0.50 lakhs of gallons with about 833.0 will serve the high level area at the eastern of the town. A plot of land 200' X 200' is to be alienated in favour of the scheme. It is desirable to shift the existing damaged road towards the east side so that sufficient

And may be available for the Service Reservoir as shown
the site plan.

26. Subsidiary Mains for feeding Service Reservoirs Nos. 2 to 6 :-

(a) The proposed service reservoirs at Buck start site and Jeppu will be connected by a gravitation main from the tail end of the chief pumping main from Double Hill. Its first 7,800 ft length from the Double Hill will be of 80" C.I pipes 'B' class and the next 7,658 ft. upto the Jeppu Reservoir will be 14" C.I pipes. The alternative to use smaller sized pipes by converting into a pumping main is not economical.

(b) The distance from Double Hill Service Reservoir site along the Bifai Road to the Padman Service Reservoir site is 9,575 ft and may be of 7" C.I pipe B and C class, C class pipes being provided where the pressure necessitates them. Water is to be lifted from level 120.0 to 243.0 by means of a booster pump at the tail end of the pumping main feeding Double Hill Service Reservoir.

(c) The distance from Double Hill Service Reservoir site to Light House Hill Service Reservoir is 7,130 ft. Water is to be pumped from about 120.0 to 185.0 through 10" B.class C.I pipes by installing booster units as per (b) above.

27. Distribution system :-

The distribution system under scope of the service reservoir will be designed as an independent unit. Interconnections may be provided to meet possible emergencies only. The total length of distribution mains now proposed is about 30 miles. The Council has approved the provision of 95 public fountains including their location in its resolution No. 25, dated 17th September 1945. The positions of 185 hydrants have been fixed by the Regional Fire Officer, Eastern Range Calcutta for which provision has been made in the estimate of approximate cost; 10 cattle troughs have also been provided for.

28. Electricity :-

Messrs. Octavius Steel Co., Ltd., Calcutta, the Managing Agents for the Mangalore Electric Supply Corporation in their letter No. 1005/45, dated 2nd August 1945, have agreed to supply Electrical Energy H.T. at 11 K.V., or 42 K.V., at a point to be decided after inter at a rate varying from 0.375 to 0.6 anna per unit on the assumption that the Government of Madras will give bulk supply to this Company before the Water Supply Scheme is commissioned and that the company would be given the choice to supply the load. The estimate for the maintenance charges have been worked out on the above basis.

9. Pumping Plant :- (Head works)

Will consist of Electric units in duplicate. The initial capacity will be 2,220 cubic gallon per minute against a head of 23 ft to serve the ultimate population of 1966 and the final capacity will be 2,725 g.p.m. assuming 15 gallon per head per day 18 hours pumping.

Approximate cost of Proposal No. 1 :-

The initial cost of this scheme for a per capita supply of 100 g.p.d. is Rs. 47,20,000/- and the annual maintenance cost is

cost is 48,600/- and 60,000/- for the prospective population of 1966 and for the ultimate population 1981 assuming 16 hours pumping in both cases as usual.

If the rate of supply per head per day is to be increased as recommended in the Bhore Committee Report (Vide also Chief Engineer's letter to Government recommending 25 to 30 gallons in large urban units) by pumping for 24 hours the capital cost will be Rs. 4990,000/- and the maintenance charge of Rs. 65,000/- and Rs. 82,000/- respectively for the ultimate population in 1966 and 1981 assuming 24 hours pumping instead of the usual 16 hours.

31. Proposal No.2 - Composite Scheme at 15 gal. per head per day :-

The Government in G.O.No.3582- P.H., dated 8th October 1938, have directed that every village in the neighbourhood of the Head-works and pumping main of a protected water supply scheme for a Municipality should be included whether the villagers have applied for such connections or not.

Kariangala and Padava Villages are not along the route of the pumping main, Kariangala is about half a mile from the head-works on the left bank of Gharapur River while the headworks are proposed on the right side of the river. Some kind of bridge or crossing arrangements are necessary to carry the distribution main to the other side of the river. The important important hamlet or suburb of Kariangala Village is Pashali which is one of the big Devasthanams in the locality. It is a pilgrim centre attracting about 7 to 8,000 people during festival seasons which lasts for a month. At present there is no road along which vehicles can pass from Andur to Pashali for a distance of 2 1/2 miles.

Padava as described in the Report preceding pages lies on either side of the Mangalore-Gharapur road. It is thickly populated on the high level portions where the above road passes. A small portion where the above road passes, a small portion of the Village has already been included within Municipal limits.

Both the above villages come under 'Near village Category,' and they are included in G.O No.2410 P.H., dated 8th July 1938.

32. Population :-

The following are population particulars for the above villages and other villages along the route of the proposed pumping main :-

Name of Village	Population as per 1941 census	Prospective population for 1966.	Ultimate population for 1981
1. Kariangala with Poshali Devasthanam	1989	2225	2545
2. Addur.	1384	1499	1823
3. Malur(With Garpur as suburb)	2393	2873	3450
4. Tiruvaila	1295	1492	1719
5. Mudushedde	1455	1592	1730
6. Puduashedde	369	430	582
7. Marakkada	981	1107	1248
8. Kavur	2006	2796	3093
9. Kerebail(with Kenchady suburb)	2491	about 1800	2166
	(Rural & Municipal)		(Rural only)
10. Kodialbail)	2587		
11.)	(Rural & Municipal)	3500 rural	4272 Rural
12. Madra)	-do- 7208 -do-	only	only
13.)			
14.)	-do- 4870 -do-	7000	-do-

Add for floating population on
festival days at Churpur and Poushall

3687

4319

Total Population :

30,000

36,000

33. supply and at the rate of 5 gallons per head per day the extra quantity to be supplied is 1.50 lakhs of gallons per day for 1,966 population and 1.75 lakhs of gallons per day for ultimate (1981). This is equivalent to only 1 gallon per head per day for the ultimate population in the ss of Mangalore Municipality. without increasing the size of pumping main this extra quantity can be pumped into the proposed new C. Drain by installing pumping units of slightly bigger capacity on by increased pumping hours. The capacity of Public Service Reservoir will have to be increased from 1 1/2 lakhs of gallons to about 2 1/4 lakhs of gallons and the size of the subsidiary pumping main feeding that service Reservoir should be increased from 7" to 9" to pump the extra quantity required. A booster pump with automatic working (by introducing a compressed air tank) of about 5 B.H.P. is to be introduced (with a standby plant in addition) at the Municipal boundary in Kumbhar which will supply water to the Rural Panchayat areas which are at higher levels 100 ft. by about 50 ft. through a suitable number of about 30 public fountains; the extra length of distribution main required being about 2,000 ft. The other villages in the neighbourhood of 3 hrs. running main will be served by suitable branches from the existing main feeding distribution network which are to be located in a population with local collection to suit the requirements in each village. The sources at the Reservoir should be sufficient to meet these additional requirements also. As Churpur is developing into a town, wells lying at it once midway in busy traffic road from Mangalore to Poushall, the distribution in this village area may be given through a few public fountains suitably located.

34. Approximate cost of Composite scheme - Unrecovered amount

The initial cost of this composite scheme involving 16 wells per capita in the Municipality Rs. 5 lakhs in the villages will be about Rs. 51,00,000 and the annual maintenance charges to supply the prospective 1981 population is Rs. 58,000/- and Rs. 72,000/- for the ultimate population of 1981 involving 16 hours pumping.

A composite scheme providing supply at 25 g/h/d for the Rural area and 5 g/h/d for the rural area for the ultimate population 1981 costs Rs. 53.57 lakhs to instal and Rs. 1,00,000 to maintain and assuming 24 hours pumping.

Proposal No. 3 Combining the Manghar valley source with the proposed Churpur River source.

35. A short description of the Manghar valley source is given under the heading, "Reservoir of the Post Vaid para 6 above. A number of borings up to the Rock Level had been put down during the previous investigations along the proposed dam line and it was finally decided to put in an Earthen dam in lieu of a masonry dam. For some reason or other, the scheme was not pushed through.

36. Linking up with Gurdar River supply :-

The proposed gravitation main from the Hasannur Head Works will join the pumping main from Gurdar source at L.S. 2000 in the Muleshedde wet land and will be 1,600 ft long and 22" diameter. The Head available will be sufficient to gravitate the water to the town through the gravitation main 22" Diameter and the 24" diameter C.I pipe, contemplated in proposal No.1, the working head being nowhere above 200 ft.

37. Potentiality of Hasannur source in relation to Kasant requirements :-

This scheme was expected to supply at the rate of 8 gallon per head per day for a population of 60,000 with the possibility of slightly increased supply if the seepage water is also tapped or say 7 gallons per capita. For the ultimate population of 1,25,000 for which the scheme has to be designed now, this source can contribute barely 3 and odd gallons per head per day. It has also to be noted here that this rate of supply cannot be secured even throughout the year especially, when poor rainfall occurs in consecutive years. From the original investigation report on this source it is seen that a water tight masonry dam is not possible at this site due to hard rock being considerably below ground level. From the nature of soil, considerable percolation and seepage losses have to be expected, only a fraction of which can be tapped by an infiltration trench below the bund. Thus the Gurdar River source head works with the existing filter and the Pumping Main from Hasannur source, have all to be of the same capacity and capacity as in proposal No.1, to meet which a supplementary scheme is required. It is suggested that no supplementary scheme is capital part of the Gurdar source is required. If the Hasannur source is to be utilised, the Gurdar River source will be required in the town. The cost of saving will be in the annual maintenance charges of Rs. 3 lakhs per year but can be reduced for the period of 30 years when the Hasannur source can contribute to the town supply (containing the alternative in Proposal No.1, with its house pumping),..

38. Irrigation rights under Hasannur Valley :-

Though about 600 acres in the vicinity (including the 250 acres of Hasannur Valley catchment) have been re-surveyed by the Revenue Department about 20 years back, for the scheme of Water supply to Mangalore the question of Irrigation rights if any below this valley does not appear to have been considered. From the letter No.L.Dia.7279/45, dated 5th August 1945, of the Tahsildar Mangalore (copy enclosed) it will be agreed that this factor has to be reckoned with seriously in the financial aspect of the scheme. The cost of acquiring the irrigation rights for the 160 and odd acres in question is reported to be about Rs.2,20,000/- (at Rs.2,000/- per acre).

39. Financial aspect of the combined scheme :-

From the details enclosed it will be seen that the capital cost of additional items of work needed for connecting the Hasannur source, to the Pumping Main in proposal No.1, comes to Rs.12,50,000/- including an infiltration trench in rear of the bund and filtration plant which is essential for purifying the raw water from the reservoir and also cost of acquiring irrigation rights. Against this the net savings in maintenance charges will be about Rs.12,000/- per year, which when capitalised for 30 years at the usual rate

rate of 3.1/2 % comes to only Rs.2,20,000. Thus financially the proposal No.3, is definitely disadvantageous.

39. CONCLUSION :-

In view of what is stated above, I am of opinion that it is not advisable to consider the Hassanar Valley source further. It is advisable to adopt Proposal No. 2, as by it the several small villages on the way also would get the benefit of protected water supply without much addition to the capital cost, or great expenditure debited to them.

R. LAKSHMANA AIYAR

9.12.46

EXECUTIVE ENGINEER,
(PUBLIC HEALTH), NORTHBORN CIRCLE

NE/3-12-46).

S. RAMCHANDRA

11-12-46

Sanitary Engineer to Govt.

bed
9/12/46

MANGALORE WATER SUPPLY INVESTIGATION

Initial
Cost

Supply for 1,75,000 people at 15 gallons per head per day for town and 35,000 people at 8 gallons per head per day for villages enroute with 16 hour pumping.

HEAD
WORKS

Sinking an infiltration well 12' diameter 25' depth at site of Boring S and a collecting at Boring No. 19.	10,000
1020' of Infiltration gallery between Borings No. 5 and 19 - (100/-)	1,02,000
Suction well 12' diameter and 45' depth	10,000
425' of connecting pipe 18" from collecting well to suction well (60/- a ft)	25,500
Pump House, Workshop etc.,	25,000
Two sets of 200 H.P. Motors pumps etc., complete and erection,	90,000
Chlorination and treatment	12,000
Revetment to river bank to protect against erosion etc.,	5,000
quarters for staff etc.,	20,000

Pipes
C.I.
Pumping
Main Con-
necting
Main etc.,

53,500 ft. of 24" C.I pipes 'B' Class including specials, earthwork laying, jointing etc.. complete at 30/- R.ft, from Head works to Double Hill reservoir.	16,05,000
7,800 ft. of 20" - to Bus stand Service Reservoir site at 23/- R.ft. .	1,65,600
7,700 ft. of 14" C.I Pipes 'B' Class from Bus Stand Service Reservoir to Jeppu Service Reservoir site at 14/- R.ft.	1,07,300
7200 ft. of 10" C.I pipes 'B' Class from Double Hill Service Reservoir to Padanow-Service-Reservoir-at-5-8-0,-R.ft. Light House Service Reservoir at Rs.9/- R.ft.	64,800
9,700 ft. of 7" C.I Pipes 'B' Class from double Hill Service Reservoir to Padanow Service Reservoir at 5-8-0 R.ft.	53,300
Sub-Pumping station at Double Hill Service Reservoir site to house pumping plant for boosting to Light House Hill and Padanow service Reservoirs.	10,000
Electric Motor and Pumps in duplicate 15 L.H.P., and 10 S.H.P.,	8,000
Service Reservoir at Double Hill to hold 2,50,000 gallons at Ground.	85,000

Service
Reservoirs

Elevated Service Reservoir at Bus Stand to hold - 250,000 gallons. 25,000

Service Reservoir at Light House Hill to hold 150,000 gallons at Ground. 60,000

Service Reservoir at Jappa to hold 1,75,000 gallons 70,000

Service Reservoir at Padmar to hold 50,000 gallons 25,000

Land Ac- Head Works Site (2 acres) 2,000
quisition and form-
ing roads etc.,

Pumping Main Road from Head works to Double Hill service Road 25 acres. 20,000

Service Reservoir sites - 10 acres. 4,000

Forming Roads, Culverts etc., 40,000

Telephone 16 miles of Telephone Connection etc.,
Communi- at 2000/- a mile. 32,000
cation etc.,

Distri- 50 miles of distribution system with
bution public fountains, hydrants, cattle
System. troughs etc., complete. 10,00,000

10 miles of 4" C.I pipes from the Pumping main to Distribution Reser-
voir in villages at Rs.15,000/- a mile 1,50,000

Distribution Reservoirs in the Villages enroute with pipe connection at 2,000/- each. 42,000

Public Fountains in Padmar Rural Area and Gurgur union area at Rs.150- each 6,000

Distribution in Gurgur Rural Area at 13,000/- a mile. 26,000

Increased cost due to increase storage capacity of service reservoir at Padmar from 50000 to 75000 gallons. 10,000

Increased size of main from 7" to 9" betw
ween Double and Padmar service Reservoir 9,700' long at 210/- 20,000

Extension of main in Padmar rural area - 6,000 ft. of C.I Pipes. 19,000

Booster plant to supply water to high level area with necessary pipe connec-
tion etc., complete, Pumping House. 6,000

Increase in cost due to slightly higher duty on pumps for increased pumping. 2,000

Contingencies 5 % 2,01,900

37 48,000

B. F.

Unforeseen work 4 %

1,61,500

Contage Charges 15.1/2 %

44,01,400

6,82,200

Rs.

50,83,600

or say 51,00,000

----- 000 0 000 -----

ANNUAL MAINTENANCE CHARGES

	1946	1931
Maintenance charges ~~as per Estimate I~~	48,600	60,000
Extra maintenance charges for looking after Distri- bution Reservoir at way side villages repairs, renewals and incidental charges.	10,000	12,000

58,600

72,000

NM/3-12-46).

R. LAKSHMANA Aiyar.

9.12.46

Ex: Engr (PH) South Circle

62
9/12/46

ESTIMATE FOR UTILISING THE HASSANAB VALLEY SOURCE IN

ADDITION TO GURPUR SOURCE :

	Rs.
~~Land acquisition and~~ Acquisition of irrigation rights, for about 150 acres at 2,000/- per acre.	3,00,000
Earthen dam with puddle core wall, including sectioning, revetting bund slope etc., complete.	1,00,000
Surplus works, tower head sluice, foot bridge, surplus channel etc.,	1,00,000
1300' of 22 C.I Pipe at Rs.27/ R.ft.	43,200
75 No. of Anchor blocks to keep the main in position in the Hill slope	5,000
400' of Infiltration trench in gravelly soil, in rear of bund and draw off arrangements.	16,000
Rapid gravity filters.	2,50,000
Extra length of Telephone Connection to Headquarter Head works	1,000
Chlorination and lime treatment n	8,000
Quarters for filter operator, watchmen etc.,	10,000
Contingencies 5 %	7,23,800
Unforeseen works 4 %	36,000 31,000
Centage charges 15. 1/2 %	38,600
	~~8,00,000~~ 842800
	~~1,34,000~~ 130500
	973300
	~~11,40,000~~

Say Rs. 12,50,000/-

for
9/12/46

Mangalore Water Supply Investigation

In connection with the water supply investigation, Mangalore, four samples of water were received for examination on 25-3-1946, from the Supervisor in charge of the investigation. Two were drawn from experimental boreholes, One from the surface flow in the Garpur River while the fourth represented a spring flow from Assamer Valley.

The samples drawn from the boreholes are highly discoloured and opaque and contain ferric iron in suspension. The pH of these samples is also on the acidic side (pH 5.7-5.8) The descriptive form accompanying the samples states that the physical appearance of the water as it is issued out of the pipe was 'slightly hazy' in the case of boring No.32 and 'clear' in the case of boring No.5. No information is furnished as to whether the discolouration present occurred after exposure to the air.

The above observation coupled with the fact that both the samples on receipt at the laboratory were highly discoloured leads one to suspect that the water contain ferrous iron, in solution which precipitates on exposure to the air. The low pH and the presence of ferric iron in suspension afford confirmatory evidence. The presence of soluble iron in the borehole waters, if established, will necessitate curvative treatment and filtration to ensure a satisfactory supply.

The other chemical features of the borehole waters are quite satisfactory. The dissolved mineral matter is fairly low. Bacteriologically, both the samples are satisfactory, the one from borehole No.32, being better in this respect.

The sample drawn from the surface flow in the Garpur river shows evidence of heavy bacterial pollution. The water is fairly clear at this part of the year and its chemical features are quite satisfactory.

The spring water from the Assamer valley is slightly discoloured but is otherwise of a very fair quality both as regards its chemical features and bacteriological quality. The pH of this water is also fairly low and the possibility of its having a deleterious action on iron structures must be borne in mind when proposals are finally drawn up.

TRUE COPY

The King Institute,

Guindy, 8th April 1946.

Sd/- X X X
For Director

To the Sanitary Engineer to Government, Chempauk, Madras

62/
9/12/46

L. Dis No. 7379/46,
From Sri P. Sitarama Shetty,
Tahsildar of Mangalore

To The Sanitary Engineer
to Government
MADRAS

Sir,

Sub: Water Supply Scheme - Mangalore Municipality -
report submitted :

Ref: Your Ref. No. 7580/2-46 WS/395 a WS dated
26-6-46, Surathkal Revenue Inspector's
N. Dis I.R. 61/56 .

1 and 2 - The source is situated in S No. 76/2 of Kundashedde village Mangalore Taluk. The plot is registered as assessed waste dry and stands reserved for the Mangalore Municipality, Water Scheme. The extent of the source is 4.80 acres. There are no irrigation rights under the above source as per current Revenue accounts. A reference to the Old Tarn Register prepared at the time of the original settlement in Fasli 1328 may throw light on this point. This register is in the Collector's office S.K.

3. The water from this source is being used as per custom under ' Mamool ' right by the holders of 17 holdings. Three paddy crops are raised annually. The 1st Crop from June to October the II crop from October to January and the IIIrd crop from January to March. Enquiry shows that 181.1/2 acres of land are cultivated with 1st crop 162 acres with IIrd crop and 12.1/2 acres with IIIrd crop with the water from the above source by the registered holders as per list enclosed.

4. A statement obtained from the villagers by the R.I Surathkal is enclosed. They state that in case the water is diverted from town supply, the second and the third crop fields will become rainfed, one crop fields. Hence they object to the proposed scheme. They request that a compensation of Rs. 2,000/- per acre sown area may be fixed. ~~may be fixed~~ The approximate amount of compensation to be paid per acre in respect of the conversion of the ayacut to dry or rainfed. 1st crop area may be Rs. 1,000/- per acre in the case of the 1st crop and Rs. 2,000/- per acre in the case of II and III crops according to the present market rates.

5. The eye sketch of the water source an extract from the land register and the statement of the villagers are enclosed.

Taluk Office, Mangalore
Dated: 6th August 1946.

sd/- ~~Pro. Sitarama Shetty~~
For Tahsildar.

Copy to the Municipal Engineer, Mangalore.

N2/10-12-46).

TRUE COPY /

FORWARDED

10/12/46

MANGALORE WATER SUPPLY INVESTIGATION.

Cost of a Scheme.

83110

	Separate Scheme for Mangalore Municipality - only.	Composite Scheme.
1. Sinking Infiltration wells 12' Dr. one at B.No.5 and one mid-way between B.Nos.19 & 20	10,000	10,000
2. 1020 Rft of Infiltration gallery bet- ween the two infiltration wells	1,02,000 ~~1,02,000~~	1,02,000 X
3. Suction well - 12' Dr X 45' Deep	10,000	10,000
4. 525 Ft. of connecting pipe 22" Dr. from collecting well to suction well @ Rs.60/- per Rft.	31,500	31,500
5. Pump house work shop etc.	25,000	25,000
6.(a) Two sets of 325 H.P. motors and pumps etc. complete and erection.		62,500
(b) Two sets of 280 H.P. motors and pumps etc. complete and erection	1,40,000 12,000 ~~1,40,000~~	
7. Chlorination and treatment		12,000
8. Rev tment to river bank to protect against erosion	6,000	6,000
9. Quarters for Staff.	20,000	20,000
10. 54990 Rft of 22" C.I. pipes B.class including Spls, earthwork laying, jointing etc. complete @ Rs.26/7/Rft.	14,53,800	14,53,800
11. 7200 Ft. of 18" Main to Bus Stand Service Reservoir site. @ Rs.20/Rft.	1,44,000	1,44,000
12. 7700 Ft. of 14" C.I. pipes B.class from Bus stand service Reservoir to Joppu Service Reservoir @ Rs.14/-/Rft.	1,07,800	1,07,800
13. 2280 Ft. of 10" C.I. pipes B.class to Light House service Reservoir @ Rs.9/-per Rft.	20,520	20,520
14.(a) 9700 Ft. of 8" C.I. pipes B.class from Double Hill service Reservoir to padaow service Reservoir @ Rs.7/-/Rft.		67,900
(b) 9700 Ft. of 7" C.I. pipes B.class from double hill service reservoir to padaow service Reservoir @ Rs.5-8-0/Rft.	63,300	
15. Sub Pumping Stn at Double Hill EXXX service reservoir to house Booster plant for Boosting to padaow service Reservoir and sub pumping station for Booster for pumping to Light House Hill At 5000+5000	10,000	10,000

94

	Scheme for Mangalore Municipality alone.	Complete Scheme
(16) Electric Motors and pumps in Duplicate 14 B.H.P. & 19 B.H.P. respectively for the Booster stations.	15,000	15,000
(17) Service Reservoir at Double Hill to store 3,33,000 g. at ground level.	1,10,000	1,10,000
(18) Elevated service reservoir at Bus-stand of a capacity of 3,33,000 g.	1,20,000	1,20,000
(19) Service Reservoir at Light House Hill to hold 2,00,000 g. at G.L.	70,000	70,000
(20) Service Reservoir at Jeppu to hold 2,33,000 g.	90,000	90,000
(21) (a) Service Reservoir at Padaow to hold 82000 gallons	-----	37,000
(b) Service Reservoir at Padaow to hold 67,000 gallons	33,000	-----
(22) Land acquisition for Hd.works site 2 acres.	2,000.	2,000
(23) Acquisition for Road-along Pumping main from Hd.works to Double hill about 25 acres.	20,000	20,000
X (24) Site for Jeppu service reservoir 0.1 acres	4,000	4,000
(25) Forming roads culverts etc.	40,000	40,000
(26) Telephone connections	16,000	16,000
(27) 50 Miles Distribution system including Public Fountains Hydrants etc. complete.	10,00,000	10,00,000
(28) 5 Miles of 3" C.I.Pipes from the Pumping main to distribution Reservoirs in villages en-route @ Rs.12,200 per mile	-----	61,000
(29) Distribution Reservoirs in villages en-route with pipe connections etc., 24 Nos. @ Rs.2000/- each	-----	48,000
(30) Extension of main to Padaow village 6000 Ft. of 4" piping	-----	19,000
(31) Booster plant to supply water to Padaow Rural village including Pump house	-----	6,000
(32) Public Fountains in Padaow village 30 Nos. @ Rs.150/-	-----	4,500
	36,65,920	38,45,520

contingencies.

	Scheme for Mangalore Municipality alone.	Composite Scheme.
	36,65,920	38,45,520
Contingencies 5%	3,29,933	3,46,097
Unforeseen works 4%		
	<u>39,95,853</u>	<u>41,91,617</u>
Centage charges 15½%	6,19,357	6,49,701
	<u>46,15,210</u>	<u>48,41,318</u>
	<u>46.15 Lakhs.</u>	<u>48.41 Lakhs.</u>

81
15-6-47

Maintenance charges in 1966.

Composite Scheme.

(1) Electrical Energy:

Hd. Works - $325 \times 20 \times 30 \times 3 = 1,46,250$ Units.

25,000 Units @ 0.6 anna	=	937- 8- 0	
75,000 " @ 0.5 "		2343-12- 0	
46250 " @ 0.425 "		1229- 0- 0	
		<u>4510- 4- 0</u>	$\times 12 = \text{Rs. } 54123$

Boosters.

Total HP = $14 + 19 + 5 = 38$
 $38 \times 30 \times 20 \times \frac{3}{4} = 17,100$ Units.
 @ 0.6 anna $\times 12 =$

7692
61815

(2) Lubrication Oil Cotton etc.	1000	
Repairs & Renewals to motors etc.	1500	
Chlorination & water treatment	1000	
Repairs to distribution system	3000	
	<u>6500</u>	6500

(3) Establishment as per Sanitary Engineer's estimate		22080
		<u>90395</u>

(4) Deduct - income on service connections - 2500 Hcs. @ Rs.18/-		45000
		<u>45395</u>
or say		46000

Independent Scheme for Mangalore alone.

(1) Electrical Energy $280 \times 30 \times 20 \times \frac{3}{4}$	= 1,26,000 Units.	
25000 Units @ 0.6 anna	Rs. 937 8 0	
75000 " 0.5 anna	" 2343 12 0	
26000 " 0.425 "	691 0 0	
	<u>3972 4 0</u>	$\times 12 = 47667$

Boosters. 13 19 - 32 B.H.P.

$32 \times 30 \times 20 \times \frac{3}{4} = 14400$ Units	
@ 0.6 anna = $540 \times 12 = 6480$	6480

Other expenses as per the above estimate

54147
23580
~~82727~~
82727

Deduct probable income from House service connections		45000
---	--	-------

or say

37727
38000

=====

Mangalore Water Supply Scheme.

I. Capacity of Service Reservoirs - (Composite Scheme) @ 20 G.P.H.

	Capacity provided @ 15 G.P.H.	Capacity to be pro- vided @ 20 G.P.H.	Q.per min 1981.	Q.per min in 1966
1. Jeppu Service Reservoir	1.75 Lakhs glns.	2.33 Lakhs	583 G.P.M.	473 G.P.M.
2. Bus stand S.R.	2.50 "	3.33 "	833 "	675 "
3. Light House Hill	1.50 "	2.00 "	500 "	406 "
4. Double Hill S.R.	2.50 "	3.33 "	833 "	675 "
5. Padaow S.R.	0.50 "	0.67 "	167 "	136 "
6. Padaow Rural	0.15	0.15	38	31
7. Rest of villages			108	94 "
Total g.p.m.			<u>3062</u>	<u>2490</u>

II. Hydraulic Level conditions for the Pumping main from Double Hill to Jeppu -

(a) 1966 condition.

			Size.	Grade.	Frictional Losses.	Hyd. Level.
0	- Jeppu					115.1
7660	- Bus Stand S.R.	473 G.P.M.	14"	$\frac{1}{1600}$	4.8.	119.9.
2350	- Booster to Light House hill.	1148 "	18"	$\frac{1}{1100}$	2.1	122.0
4850	- Double Hill S.R.	1554 "	18"	$\frac{1}{610}$	8.0	130.0

(b) 1981 condition.

0	- Jeppu					110.0
7660	- Bus Stand S.R.	583 g.p.m.	14"	$\frac{1}{1050}$	7.3.	117.3.
2350	- Booster to Light House Hill.	1416 "	18"	$\frac{1}{730}$	3.2	120.5
4850	- Double Hill S.R.	1916 "	18"	$\frac{1}{400}$	12.1	132.1

III. Horse Power calculations.

Hd. Works plant.

(a) With 24" Main & 22" main

1966 condition
with 24" Main. with 22" main

Suction level = 12.0

Delivery level
at Jeppu Reser- 115.0
voir.

127.0

127.0

127.0

F.Losses

	1966 condition With 24" Main	With 22" Main
F. Losses in 54990 Rft. of 24" or 22" main to discharge 2490 G.P.M. Gr. 1/1100 or 1/710	50.0	77.5
F. Losses in the 18" & 14" Main	14.9	14.9
Other Losses	13.1	10.6
	<u>205.0</u>	<u>230.0</u>

$$\begin{aligned} \text{B.H.P. with 24" Main} &= \frac{2490 \times 10 \times 205}{33000} \times 1.87 = 290 \\ \text{B.H.P. with 22" Main} &= \frac{2490 \times 10 \times 230}{33000} \times 1.87 = 325 \end{aligned}$$

(b) Horse Power of Pumps for 1981 condition.

	24" Main	22" Main
Static Head - 12.0 + 110	12.0	122.0
F. Losses in 54990' of 24" or 22" main to discharge 3062 g.p.m. Gr. $\frac{1}{760}$ or $\frac{1}{475}$	72.5	116.0
F. Losses in 18" & 14" main	22.6	22.6
Other Losses	12.9	11.4
	<u>230.0</u>	<u>272.0</u>
B.H.P. with 24" Main	$= \frac{3062 \times 10 \times 230}{330000} \times 18.7 = 400$	
B.H.P. with 22" Main	$= \frac{3062 \times 10 \times 272}{330000} \times 18.7 = 470$	

IV. Hyd levels with 24" & 22" Main at the ridge at ch. 37007'

(a) For 24" Main.

	1966 Condition.	1981 condition.
ch. 54990	130.0	132.1
45539 9450' 24" $\frac{1}{1100}$ 8.6	138.6	144.6
37007 8532' 24" " 7.8	146.4	155.8
34388 2619 24" " 2.4	148.8	159.2

(b) For 22" Main.

0' 22" $\frac{1}{710}$	130.0	130.0
9450' " " 13.3	143.3	149.9
8532' " " 12.0	155.3	167.9
2619' " " 3.7	159.0	173.4

Booster to Light House Hill S.R.

(a) Composite Scheme

1966 requirements.

suction level

suction level	122.0	
Delivery level	<u>185.0</u>	
	63.0	63.0

F.Losses in 2280 Ft of 10" main to discharge 406 G.P.M. Gr. <u>1</u>		6.5
	350	

Other Losses		<u>10.5</u>
	Head	80.0 Ft.

B.H.P. = $\frac{406 \times 10 \times 80 \times 1.87}{33000} = 18.4$ or say 19.

(b) Composite Scheme . . 1981 condition.

Suction level	120.5.	
Delivery level	<u>185.0</u>	
	64.5	64.5.

F.Losses in 10" Main 2280' long wng to discharge 500 G.P.M. 1/235		9.7
Other losses		<u>10.8</u>
	Total Head	<u>85.0</u>

B.H.P. = $\frac{500 \times 10 \times 85 \times 1.87}{33000} = 24.2$ or 25 B.H.P.

VI. Booster to Padgaow Hill.

(a) Composite Scheme 1966 requirements.

Suction level	130.0	
Delivery level	<u>243.0</u>	
Static Head	113.0	113.0

Frictional losses in 9675 Rft of 8" main to discharge 167 G.P.M. 1/600		16.1
--	--	------

Other losses		<u>10.9</u>
	Head	<u>140.0 Ft.</u>

B.H.P. = $\frac{167 \times 10 \times 140 \times 1.87}{33000} = 14$ B.H.P.

(b) Composite Scheme 1981 requirements.

Static Head		113.0
F.Losses in 9675' of 8" main to discharge 205 G.P.M. 1/400		24.2
Other Losses		<u>12.8</u>
		<u>150.0</u>

B.H.P. = $\frac{205 \times 10 \times 150 \times 1.87}{33000} = 18$ B.H.P.

(c) Independent Scheme to Mangalore alone for 1966 condition.

Static Head ~~XXXX~~	113.0
F.Losses in 9675' of 7" Main to l discharge 136 G.P.M. Gr. 1/430	22.5
Other Losses	<u>10.5.</u>
	Head <u>146.0 Ft.</u>

B.H.P. = $\frac{136 \times 10 \times 146 \times 1.87}{33000} = 11.25$ or 12 B.H.P.

VII. Independent Scheme.

B.H.P. of Pumps to ^{serve} give 1966 requirements .

Hd. works pumps.

Hd. Works Pumps.

Suction level = 12.0

Delivery level
at Double hill 130.0
142.0

142.0

Losses in 54000 Ft of 22" main to
discharge 2267 G.P.M.
rate 1/850

64.7

Other Losses

10.3
217.0

B.H.P. = $\frac{2267 \times 10 \times 217 \times 1.87}{33000}$

280 B.H.P.

VIII. Cost of Electrical Energy for the two alternatives of having 24" Main & 22" main.

(a) 24" main:-

Electrical energy per month
= $290 \times 20 \times 30 \times \frac{3}{4}$

130500 units

First 25000 units @ 0.6 anna
75000 " @ 0.5 "
30500 " @ 0.425 "

Rs	in	ps
837	8	0
2343	12	0
810	0	0
4091	4	0

X 12 = Rs 49095

(b) 22" Main:-

$325 \times 20 \times 30 \times \frac{3}{4} = 1,46,250$ units.

100,000 Units
46,250 @ 0.425

3281	4	0
1229	0	0
4510	4	0

X 12 : Rs 54123

Savings in Hassanar Valley Scheme (1966)

(1) Composite Scheme.

Supply from Hassanar valley = 60000 X 6
= 360000 Gln per day.
Capacity of pumps at Gurpur = 2400 G.P.M.
= 14400 Glns per hour.
Savings in pumping hours = $\frac{360000}{14400}$
= 2.4 or say 2 1/2 hours.

Proportionate Savings in cost = $\frac{68315 \times 2.5}{20} = 8500$

Maintenance cost at Hassanar Hd. works = 4500
Net savings = Rs. 4000

(2) Independent Scheme.

Capacity of Pumps at Gurpur = 2267 G.P.M.
or 136020 Glns. per hour.

Savings in pumping hours = $\frac{360000}{136000}$
= 2.7 hours.

Proportionate savings in cost taking items 1 & 2 on p.4 ante. = $\frac{54147 \times 2.7}{20}$

Maintenance cost at Hassanar Head work = 7300
Net Savings = 2800
or say 3000

105

CHIEF ENGINEER'S NOTE ON THE INVESTIGATION REPORT OF THE MANGALORE WATER SUPPLY SCHEME.

The report on the investigation of the Mangalore Water Supply Scheme with Hassamar and Gurpur as sources submitted by the Sanitary Engineer has been examined and the points requiring remarks are dealt with below:-

(1) Rate of Water supply.

~~San 1945~~
The Mangalore Municipality in ~~1945~~ resolved to have a 15 gallons scheme. The proposals accordingly provide for a 15 gallons scheme with 16 hours pumping with the idea that by increasing the pumping hours to 24, the rate of supply could be increased to 22½ gallons per head per day when such increase is found desirable. For an infiltration source, 24 hours pumping should be avoided as sufficient time for recuperation should be allowed. In this case the number of hours of pumping may be restricted to 20 hours, allowing 4 hours time for recuperation. If the recommendations of the Bhore's Committee Report are to be followed, a rate of supply of 25 gallons per head per day at least should be provided but this being an infiltration source with limitations of yield, it is enough if the scheme is designed for a 20 gallons supply with 20 hours pumping to serve an ultimate population of 1,75,000 for Mangalore Municipality. For villages enroute a supply of 5 gallons per capita as assumed in the report may be adopted being rural parts.

(2) Head works.

It is mentioned in the report that a kutchra anicut exists across the river 6 miles above the site of Head works and is intended for irrigation purposes and that the irrigation department is contemplating to construct a masonry anicut at the same site to improve irrigation facilities. The construction of this anicut may have the adverse effect of cutting of flow below the anicut and affect the sub-soil flow at the Head works site. ~~(irrigation)~~ So this will have to be specially pointed out to the Chief Engineer and he should be requested to see that necessary provisions are made in their project to let down sufficient water during summer months to meet the requirements of water supply to the Municipality.

(3) Gallery.

The bottom level of gallery is shown as - 9.5. In the report, it is stated that the lowest summer water level may not go below 0.50. Therefore, the bottom of gallery as proposed will be 10' below the assumed water level. It is desirable that the gallery is taken a few feet more deeper to allow sufficient margin to meet the contingency of the summer water level going down still further during periods with consecutive dry years. Consecutive periods with dry years.

(4) Collecting Well.

A water tight collecting well is proposed at boring No.19. From the C.S.No.4 in San.No.41/46, it is seen that the depth of sandy bed increases towards boring B No.20 and so it seems desirable that the collecting well may also be an infiltration well and at a place between B.Nos.19 & 20.

(5) Connecting pipe.

A 18" size of connecting pipe is proposed between the collecting well and the suction well. For the quantity of water to be drawn through this main viz: 3062 G.P.M. the frictional losses would be about 3.3 ft. which is too much. To reduce the frictional losses to about 1 ft. a size of 22" at least should be provided.

(6) Quality of Water.

The water from the borings in Gurpur river is stated to be yellow in colour and ferric iron is found in suspension. The presence of iron may account for the colouration. The ~~Public Health~~ ^{Public Health} value of water also varies from 6.0 to 5.7 i.e., the water is acidic. The Director of King Institute is of opinion that some form of corrective treatment and filtration would be necessary to remove the ferric iron in solution. The Executive Engineer (Public Health) has not offered

made any remarks on the removal of iron but suggested lime treatment and chlorination by the minimal dose method in order to correct the acidic nature of the water. Before the exact method of treatment is decided on it is necessary to find out by analysis the amount of iron actually present. If it is less than 0.1 parts per million no corrective treatment would be necessary except that lime should be added to correct the Public Health value. If it exceeds this quantity, the method of treatment to be adopted is to be decided. In any case some settlement tanks or filters must be provided to eliminate the precipitate formed after addition of lime. A tentative provision of Rs.12,000/- is made for this in the estimate. The adequacy of this amount cannot be examined at this stage as the method of treatment is not decided yet. The treatment works will naturally have to be located at the Head works site or otherwise the pipes may get corroded on account of the acid nature of the water. This requires two stages of pumping (i) from the suction well to treatment works & (ii) from the treatment works to the Town. The Sanitary Engineer may examine this in detail before drawing up the plans and estimates.

(7) Pumping main.

Pumping main of 22" diameter size with 325 B.H.P. pumps at Head works would be more economical than 24" diameter pipes with 290 B.H.P. pumps proposed and may, therefore, be adopted.

(8) Gravitation main from Double Hill Service Reservoir to Jeppu Service Reservoir.

From the hydraulic level calculations, it is observed that a level of + 120.0 only is taken at Double Hill Service Reservoir for calculating the size of the main from this Service Reservoir to Jeppu Service Reservoir while the hydraulic level of the pumping main at the same place is + 130.00, thus a head of 10' is left out of consideration. If the main below the Double Hill is continued as pumping main instead of gravitation as now done, a 18" diameter pipe line will be sufficient instead of 20" proposed from the Double Hill Service Reservoir to Bus Stand Service Reservoir. By this, there will be a saving of about Rs.21,600/-. The pumping main from Bus Stand Service Reservoir to Jeppu may be of 14" as proposed.

(9) Pumping main to Padaow.

The size of pumping main proposed by the Sanitary Engineer is 7" if rural Padaow outside Municipal limits is excluded and 9" if that area also is to be served as a rural area. To serve Padaow Municipal and rural areas a size of 8" main seems to be sufficient and may be adopted.

(10) Booster for serving Light House Hill. Service Reservoir.

A Booster is proposed to be located at Double Hill and the quantity required to the light house Hill Service Reservoir is proposed to be lifted through a 10" main 7,130' long. This length of 10" pumping main is unnecessary and as the 20" pumping main passes within a distance of 2280 Rft. from the Light House Hill, the booster can be located at B shows in plan San.No.40/46 and 10" main laid therefrom to the Light House Hill for 2280 ft. By this arrangement there would be a saving of Rs.43650/-.

(11) Site for Pumping Station.

The suction well is shown on the border of S.No.37/11-A and 11-B vide San No.42/46. It is desirable that a portion of 11-A also is required.

(12) Pumping Plant. (Composite Scheme)

The Executive Engineer (Public Health) has worked out the pumping capacity assuming a 15 gallons supply with 16 hours pumping. For a 20 gallons scheme with 20 hours pumping and with 22" pumping main now suggested, the pumps should be of 325 B.H.P. capable of pumping 2492 C.P.M. against a head of 230 ft.

(13) Service Reservoir.

The capacities proposed by the Executive Engineer (Public Health) for a 15 gallons scheme and the capacities required for 20 gallons scheme are given below. The latter may be adopted.

	Capacity as per Executive Engineer (Public Health)'s proposal for a 15 gallons scheme - 8 hours storage.	Capacity required for a 20 gallons scheme. 8 Hours storage.
1. Double Hill Service Reservoir. (Ground Level)	2.5 lakhs of gallons	3.33 lakhs of gallons
2. Padaow Service Reservoir. (Elevated)	0.75 "	0.82 " (To Serve Padaow including rural Padaow.)
3. Light House Service Reservoir (Ground Level)	1.50 "	2.00 "
4. Bus Stand Service Reservoir (Elevated)	2.50 "	3.33 "
5. Jeppu Service Reservoir (Elevated)	1.75 "	2.33 "

(14) Distribution System.

As this is a house service connection scheme, the 95 public fountains approved by the Council in Resolution No. 29 dated 17-9-45 may be so located to serve the poorer areas as they cannot afford to have individual house connections.

Distribution to villages enroute.

(a) Of the 12 rural areas enroute, Gurpur and Padaow are proposed to be served by a distribution system with Public taps, while the other 10 villages would be served by Distribution Reservoirs with taps around. In the case of Padaow however a Reservoir is proposed considering its high level. As the tapping for the villages enroute is from a 22" pumping main which runs under a high pressure direct tap connections from the main without the intervention of a Reservoir are not desirable and so Gurpur village also may be served with distribution reservoirs instead of direct taps. The population of the 11 villages excluding Padaow to be served is about 27,000 and may be served by 24 distribution reservoirs of 2000 gallons capacity with 6 taps round each. The allocation of distribution reservoirs may be as follows:-

	U.P.	
1. Kariangala & Pozhali	2545	3 Nos.
2. Addur.	1623	2 "
3. Malur and Gurpur	3450	4 "
4. Tiruvailu.	1719	2 "
5. Mudushedde	1730	2 "
6. Pudushedde	502	1 No.
7. Marakkada	1281	1 "
8. Kavur.	3093	3 Nos.
9. Aerebail & Kanchady	2166	3 Nos.
10. Kadiakhalli		
11. Kadre.	4272	4 "

		24 Nos.

(15) Cost.

Fresh approximate estimates for alternative schemes 1 & 2 referred to para 17 of the investigation report have been worked out with ref. to the above remarks and are enclosed herewith. The

Approximate cost furnished for Scheme 3 remains the same. The relative capital cost and maintenance charges of the 3 schemes are given below:-

	Capital Cost. Rs.	Maintenance Charges. (for 1966 Rs. Condition)
1. Protected water supply to the Mangalore Municipality alone at 20 gallons per head per day from Gurpur source.	46.15 Lakhs.	38,000
2. A composite scheme with Gurpur River source to serve the Mangalore Municipality at 20 gallons per head per day as well as villages enroute at 5 gallons supply.	48.41 "	46,000
3. A scheme utilising Hassamar valley scheme intended to serve 60,000 people at 6 gallons or 2 gallons for the ultimate population of 175000 in addition to the Gurpur River source, as per (1) or (2) above.	Extra over and above schemes 1 or 2 about Rs.9.80 lakhs.	Savings in 1 Rs.3000 and savings in Scheme 2 Rs.4000.

In G.O.No.Ms.2934-Public Health dated 3-7-40 sanction was accorded for the preparation of detailed plans and estimate for the Hassamar valley scheme i.e., scheme 3 and also for the investigation of the Gurpur scheme i.e., scheme 1, to serve as a supplemental scheme to the Hassamar valley scheme. It was then considered that there would be savings in taking up the Hassamar valley scheme it being a gravitational scheme. But actual investigation now made had revealed that the yield of Hassamar valley scheme works out to about 2 G.P.M. per head per day for an ultimate population of 1,75,000 and that for such a small supply, a sum of Rs.9.8 lakhs has to be spent initially while there will be a net savings of Rs.4000 per year (maximum) in maintenance which when capitalised for 30 years at the usual rate of 3 1/2% will be only Rs.74000. Thus financially scheme No.3 is definitely disadvantageous and has to be dropped. As between schemes Nos.1 & 2 it is desirable to adopt scheme No.2 as in that case the several small villages on the way would also get the benefit of protected supply without much addition to the capital cost of the scheme as a whole or without any great expenditure debited to them.

S. Venkatarao
For Chief Engineer (Highways)

Enclosure:-

1 Approximate Estimate for Schemes 1 & 2.

11/10

S.K.10/10

$$\begin{array}{r} 74 \text{ cm} \\ 12 \overline{) 86} \\ \underline{12} \\ 3 \end{array}$$

14/

Date.

Initials.

SUBJECT :—

W.S. Scheme - Mangalore
Municipality - Preparation
of plans and estimates -
Sanctioned.

READ ALSO :—

pp35-36c No. _____ From the C. E. (H), No. 2251, dated 8.10.1967
b57c " Commr, Mangalore " CS/1405/67 2.12.1967
b69c " " " CS/1405/67 17.2.1968
Order Ms. No. 777 / P.H. dated 12/3/68
~~Resolution Rout.~~ 10

In connection with ^{the provision of} ~~a water-supply~~
~~scheme~~ ^{scheme} for the Mangalore Municipality, three
alternative schemes were suggested, namely:

- (1) Scheme with Gurspur river source to serve ^{to} Mangalore Municipality alone;
- (2) Scheme with Gurspur river source to serve ^{the} Mangalore Municipality and the villages enroute; and
- (3) Scheme with Haddamar valley source ~~to serve~~ in addition to Gurspur river

2. ^{Best scheme} ~~Source~~ of them, the C. E. recommended the composite [9 km (2) above] scheme with Ghorpur river source, which will serve the Mangalore Municipality at 20 gallons per head per day and the villages enroute at 5 gallons per head per day. This scheme is

expected to cost Rs. 48.41 lakhs to instal and Rs. 46,000 per annum to maintain. The C.E. also requested that sanction might be accorded for the execution of a tentative length of infiltration gallery of 1020 feet in advance of the preparation of the detailed plans and estimates for the scheme. The M.C., Mangalore, which was consulted in the matter, has agreed with the recommendations of the C.E.

item 2 on p35c1

para 3 on pp 35-36c1

p45c1

p59c1

3. On an examination of the financial position of the M.C., Mangalore, it is seen that the C. can finance the w.s. scheme on the ^{ml}unabhalf-grant half-loan basis, if it increases the rate of water and drainage tax from 2 p.c. p.a. to 11 p.c. p.a. The M.C., Mangalore, which was consulted, has agreed to increase the tax accordingly.

p11n1

p11n1

p69c1

4. On the circumstances sanction is accorded to the preparation of ~~plans~~ detailed plans and estimates for the composite w.s. scheme with the Gurspur river source, to serve the Mangalore Municipality at 20 gallons per head per day and the villages enroute at 5 gallons per head per day. The Govt. also approve the proposal of the C.E. to take up the construction of infiltration gallery for a length of 1020 feet in advance of the preparation of the detailed plans and estimates for the scheme.

item 2 on p35c1

para 3 on pp 35-36c1

pp 59-60 c/f

Vide orders on
p 9 n.f

5 A copy of the resolution of the
M. C. Mangalore, No. 87, d/29.11.47 is com-
municated to the C.E. (H) and he is requested
to take ~~immediate~~ ^{immediate} steps for the acquisition of
lands required for the scheme.

To the Commissioner
Mangalore Municipality
(thru the Chairman,
M. C.)

25/2/48
27/2/48

26/2/48
27/2/48

n u C.E. (Highways)
(with copy of the resolution
on pp 59-60 c/f
investigation report
and plans)

(S)

Kept in
Section

Entered in Regr
19/12/47

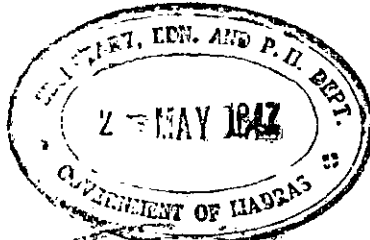
Encls to C.E. (Highways)

16/3/48

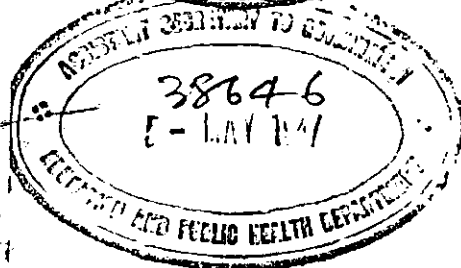
Entered in
Ser

Joint Secretary.

Please put up papers relating
to Water-supply and Drainage
schemes for Mangalore Municipality.



2.5.47



Recd
6/5/47

EDP.HCH-12

(M) above. The papers referred to are placed below.

2. Mangalore Water-Supply Scheme.

p2 n f of go 3392 PH
27.11.46 The investigation of two sources viz. Hassammar and
Gurpur sources for a w.s. scheme for Mangalore city
was sanctioned in 1940. The scheme occupied the 31st

(X)/2

p23c f of (M) Supply In go. 3392 P.H., d/27.11.46, Mangalore was shifted
three places higher up and assigned the 28th rank in the
compendium. The design of the scheme is proposed programme

p23d f of (M) to be taken up in the fifth year of the first five year plan. The
request of the d. for a higher place in the compendium has been referred to the C.E.
in the d. for a higher place in the compendium has been referred to the C.E.

3. Mangalore Drainage Scheme.

A drainage
scheme for the Mangalore city estimated to cost Rs. 6.59 lakhs
was investigated by the S.E. in 1932, but was not further
proceeded with for lack of funds. The scheme
occupies the 70th place out of a total of 1063 schemes in the
compendium of provincial requirements of drainage
for orders as to circulation.

(X)/3

13.5.47

14/5/47

P.T.D.

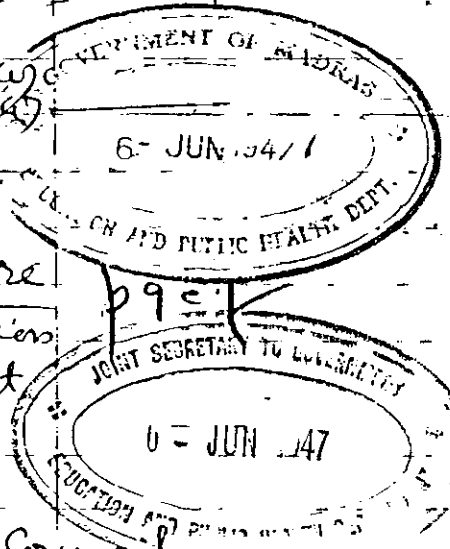
HA (P.H.)

The C.E. may be reminded.

Ans
6/6/47

From the C.E., P.W.D., (G.B.S.), No. 1115-WPH/47-2
" " " " T.M., No. 2251-WPH/46-9, S.645

The C.E. reports that the investigation of the Hassaman and Gurpur sources for the W.D. scheme of the Mangalore City has been completed, that the investigation report is under scrutiny in his office and that it will be submitted to Govt. by the end of this month.

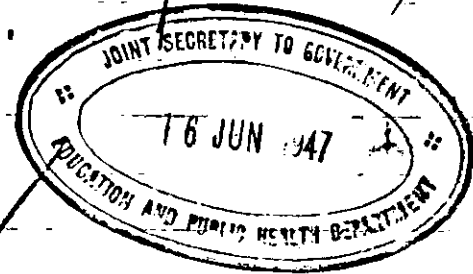


As regards the request of the Council for assigning a higher place for Mangalore in the Compendium, the Sanitary Engineer states that, as the question was only recently considered and its rank of Mangalore raised from 31st to 28th place in G.O. 3392 P.H., d/27.11.46, there is no further ground to reconsider the question. The C.E. agrees with the S.E.

For orders whether the S.E.'s recommendation will be accepted.



13. June 1947
G.B.S.



The incidence of enteric fever is high in Mangalore. Malaria is spreading. Even small children are getting it now. When I was at Mangalore at the end of last month representations were made to me regarding the urgent necessity for a water-supply & drainage scheme for Mangalore. This is a long standing demand. Investigations regarding water supply have been made from time to time. The drainage scheme proposal has fallen to the background.

The Health Board which is to meet on the 20th inst may consider the question of assigning a higher place for Mangalore in the compendium.

The general question relating to the matters to be taken into consideration in fixing places in the compendium may be taken up at the next meet of the Health Board. The Water Supply Committee also may give its consideration to this question and give its suggestions.

15/6/47

Two draft memoranda are submitted

16/6/47

16.6.47

2/8

16.6.47

pp 11-12 of signed as Memoranda. 21671 H-1/47-2 P.H., 2/16.6.47 and
p 13 of 21671 H-1/47-3 P.H., 2/16.6.47
pp 25-27 of Proceedings of the P.H. Board at its meeting held on 20.6.47

The P.H. Board has constituted a committee to go into the questions of priority of w.s. and d. schemes. This may be over till 30.8.47.

8/7/47

9-7-47

10.7.47

The D.P.H. had in another connection stated that the w.s. and d. Committee has prepared a revised list of compendium. The report of the Committee is shortly due with Govt. This may continue to be over till 15.9.47.

1/9/47

2/9/47

The w.s. and d. Committee has submitted its report. The Committee has suggested that for purposes of fixing priorities for w.s. and d. schemes, the province might be divided into two circles - Northern and Southern. The Committee has recommended that Mangalore might be assigned the first place in the list of schemes to be newly provided in the Southern Circle. Orders have to be taken on the suggestions of the Committee. This may be over till 25.10.47 or till orders are passed on the proposal referred to above, whichever is earlier.

15-9-47

16.9.47

SPECIAL.

J.S., P.H.

MANGALORE WATER-SUPPLY SCHEME.

I understand from Sri L.C.Pais, M.L.A., Mangalore, that the above water-supply scheme investigation report was submitted by the Sanitary Engineer to the C.E., P.W.D., in January 1947 and that in spite of repeated reminders the report has not yet been sent to Govt. Why does the scrutiny of this report take such a long time? The Mangalore water-supply scheme investigation has been going on for at least 12 years now. The C.E. may be given a special reminder to send up the investigation report to Govt. as early as possible.

and
25/9/47
M.(P.H.)

Ex H(CH-1)

In his ^{T.M.} letter of 5.6.47, the C.E. had stated that the investigation of the Hassaman and Gurspur sources for the w.s.

scheme of the Mangalore city had been completed and that the investigation report was under scrutiny in his office.

With reference to 'M' above, a draft memo is submitted.

Done as Memo. No. 21671 H-1/47-5 P.H., d/25.9.47.

From the C.E.(H), No. 2251-PWW/46-13, d/29.9.47

Please see the interim reply from the C.E. at p. 31c.f. The receipt of the investigation report may be awaited till 8.10.47.

A draft reminder is submitted for approval on p. 32c.f.

Done as Memo. No. 21671 H-1/47-6 P.H. d/9.10.47 p. 32

pp 35-36 From the C.E.(H), No. 2251 P.W.D./46-14, d/8.10.47.

Vide para 2 on
p 35 of

para 3 on
pp 35-36 of

The C.E. has forwarded to Govt the investigation report of the Executive Engineer (P.H.) Southern Circle for a water supply scheme for the Mangalore City. Of the three alternative schemes envisaged in the report, the C.E. recommends the composite scheme with Gurpur River source to serve the Mangalore City at 20 gallons per head per day as well as the villages enroute at 5 gallons per head per day. The views of the M.C. may be called for on the proposals of the C.E. and it is asked to state how it proposes to finance the scheme.

2. The C.E. also requests that, for the reasons stated in para 3 of his letter, sanction may be accorded for the execution of a tentative length of infiltration gallery of 1020 feet, and in advance of the preparation of the detailed plans and estimates. Orders in the matter may be issued when the C.E. is asked to prepare the detailed plans and estimates, after the views of the M.C. have been obtained.

3. With reference to para 1 above, a draft memo is submitted for approval. The file may be circulated to H.M.(P.H.) with reference to his minutes on

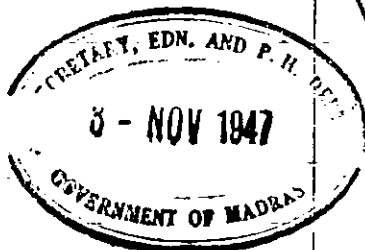
p.4 ante.

21/10/47 21/10/47

26.10.47 - JS/

The Commissioner may be asked to treat the matter as urgent.

H.M.(P.H.)



8-NOV-47

With reference to the minutes of H.M.(P.H.) above, a new para has been added in the draft. It may be approved.

3.11.47

peru

p 45 of 28th ad Memo: No. 21691 H/47-7 P.H., d/4-11-47

Hony. Secy.

from the Joint Secretaries, The South Kanara Dist. Advancement Association, Mangalore, 2/12/47

pp 47-48 of

Please see the letter from the Joint May Secretary, the South Kanara Dist. Advancement Association, Mangalore, at pp 47-48 c.f. and the minutes of H.M. (P.H.) on 2.12.47

The investigation report for a w. s. scheme for the Mangalore city submitted by the C.E. has been referred to the M.C. Mangalore, for its views. The M.C. has been asked to state which of the three alternative schemes suggested by the C.E., it proposes to adopt and how it proposes to finance the scheme. Pending the receipt of a reply from the Commr., Mangalore City, the memo on p 45 of the action seems called for on the letter on pp 46-47-48 c.f.

b45 c.f.

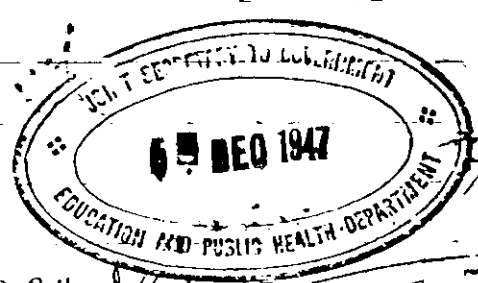
p 45 of

The Commr., Mangalore City, may be reminded. A draft memo is submitted for approval.

Letter

The case may be referred to M.H. (P.H.) for perusal. 2/12/47 11 12 and orders when a reply should be given to the Hony Secy. of the M.C.

A report to be given in the next meeting



H.M. (P.H.)

Forwarded as Memo: No. 2167 (H-1/47-8 P.H.) 2/6.12.47

From the Secretary, Rate-payers Association, Mangalore, 2/1.12.47



Remember to the Commr. of the Mangalore City

The requests made in these resolutions may be considered

p 51 of

Please see the letter from the Secretary, Rate-payers' Association, Mangalore, forwarding a copy of the resolution of the Citizens of Mangalore held on 28.11.47 and the minutes of H.M. (P.H.) extracted above.

p 51 of

The requests made in the resolution are:

p 51 of

p 51-f

- (i) that in view of the introduction of the water supply and drainage schemes for the Mangalore Municipality may be expedited; and
- (ii) that the S.E.; the D.P.H. and the Sany. Engineer may be deputed to visit Mangalore to finalise the schemes.

Request (i).

2. Water - supply scheme.

The investigation report for a water - supply scheme for the Mangalore Municipality submitted by the C.E. has been referred to the M.C., Mangalore, for its views. The M.C. has been asked to state which of the three alternative schemes suggested by the C.E. it proposes to adopt and how it proposes to ~~adopt and~~ finance the scheme. Pending the receipt of a reply from the Commr, Mangalore City, to the memo on p 45 c.f., no action seems called for in respect of w.s. scheme. It may be noted in this connection that the w.s. and d. committee ~~has~~ have recommended that Mangalore might be assigned the first place in the list of municipal w.s. schemes to be newly provided in the southern circle.

3. Drainage scheme.

A scheme of drainage for the Mangalore city estimated to cost Rs. 6.59 lakhs was investigated by the Sany. Engineer in 1932; but it was not further proceeded with for lack of funds. The scheme is assigned the 70th place out of a total of 1063 schemes in the compendium of the provincial requirements of drainage. In their report, the w.s. & d. committee have recommended that Mangalore might be assigned the ~~for~~ fourth place in the list of municipal drainage schemes to be newly provided in the southern circle. The Committee have also recommended that all urban and rural w.s. and d. schemes should be executed within a period of ten years at any ~~cost~~

p 45 c.f

do

10/12

5513 P.H.
24 3 4

pp 2-3 of (2)

55 P.H.
7 1 4

(X)/3

of under p. 11

Pending examination of the report of the Committee.
No action seems called for on the letter on p 49 c/f.

Request II. The S.E. is to be examined and he will not submit any report to the Hon. Secy. on any occasion.

A draft letter to the Hon. Secy., the South Kanara Dist. Board Advancement Association, is submitted for approval with reference to the order on p. 6 ante.

A

The file may be circulated to H.M.(PA) with reference to his minutes extracted at p 6 ante.

B
3/12/47

p 59 c/f

g. ex. no. 10/10/47

From the Commr, Mangalore City, Ref: C5/1405/43, 2/2-12-47, AM(PA)
35-36 c/f

In October 1947, the C.E. forwarded to Govt. the investigation report of the Executive Engineer (Northern Circle, for a water supply scheme of the Mangalore Municipality. ^{alternative} ^{was suggested} ~~of the three schemes~~ in the report, the C.E. recommended the composite scheme with the Gurpur ~~source~~ river source, to serve the Mangalore Municipality at 20 gallons per head per day as well as the villages enroute at 5 gallons per head per day. This scheme is expected to cost Rs. 48,41 lakhs to instal and Rs. 46,000 per annum to maintain. The C.E. also requested for the reasons stated in para 3 of his letter on pp 35-36 c/f, sanction right be accorded for the execution of a tentative length of infiltration gallery of 1020 feet in advance the preparation of the detailed plans and estimates. The investigation report and the proposals of the C.E.

p 35 c/f

p 35 c/f

pp 35-36 c/f

were referred to the M.L. d. Mangalore, for its views. The M.L. was also asked to state how it proposed to finance the scheme. The reply of the Commr, Mangalore City, is at p 59 c/f.

p 45 c/f

The M.L. d. Mangalore, has agreed with the recommendations of the Chief Engineer.

p 59 c/f

The M.L. d. Mangalore, has also requested

p59e.f

(i) that the scheme may be financed on the usual half-grant half-loan basis (The M.C. has agreed to raise the rate of tax suitably to enable it to pay the annuity);

do

(ii) that proceedings may be taken up immediately for the acquisition of the lands required for the scheme;

pp59-60 c.f

(iii) that Govt may supply bulk electric power to the South Kanara dt. immediately from one of the major power installations so that the required electric power may be available for the w.s. and d. schemes; and

p60 c.f

(iv) that sanction may be accorded for the preliminary investigation of a drainage scheme for the Mangalore Municipality.

p35e1

48 41
24.205

p35e.f

Request (i) above. L.A. may be requested to examine the financial position of the M.C., Mangalore and to state whether it can meet its share of the scheme (namely Rs. 24.205 lakhs to instal and Rs. 46,000 per annum to maintain) with or without the aid of a loan.

p59e.f

refr

Request (ii) above. While passing orders sanctioning the preparation of detailed plans and estimates, a copy of the resolution may be communicated to the C.E. and he may be asked to take immediate steps for the acquisition of the lands.

refr

Request (iii) above. P.W.D. may see for remarks.

(X)/3

Request (iv) above. ^{The} A scheme of drainage for the Mangalore City is assigned the 90th place out of a total of 1063 schemes in the compendium of the provincial requirements of drainage. In their report (which is in print), the w.s. & d. Committee have recommended that Mangalore might be assigned the fourth place in the list of municipal drainage schemes to be newly provided in the Southern circle. The Committee have also recommended that all

urban and rural w.s. & d. schemes should be executed within a period of ten years at any cost. Pending examination of the report of the Committee no action seems called for on this request.

The Commr., Mangalore City, has not returned the plans and estimates sent to him with the Govt. Memo. on p. 45 c.f. He may be requested to return them. A draft memo is submitted for approval. A revised draft letter to the Hon. Secy. the South Kanara St. Board Advancement Association is also submitted for approval. (vide p. 10/12/47)

After issue of the draft memo and letter, the file may be sent to L.A., P.W.D. and Finance for remarks.

11/12/47
11/12/47

12/12/47

Issued pp 64

LA / PWD / Finance



EP-4767/47
15/12/47

L.A. Dept.
Bund

This file has been sent to this Dept. with reference to portion marked 'A' on page 9 above.

The Council's share of the cost of the water supply scheme is Rs 24.20 lakhs & non-recurring and Rs 46,000 recurring. The B.E. of the Mangalore M.C. for 1948-49 has not yet been received. The B.E.

of the Council for 1947-48 under the water supply and drainage fund closes with a balance

of Rs 45,109 only. The Council cannot therefore afford to meet its share of expenditure of Rs 24.20 lakhs from its own funds. The amount for a loan of Rs 24.20 lakhs repayable in 30 instalments at 3 1/4% interest is Rs 1,27,484. In addition to

172
240
18
72
18
3634

12,159

127500
46000

12500

1154
h)
116000

13594
h)
116000

the above annuity the Council must also find a sum of Rs 46,000 towards the maintenance ^{charges} of the scheme. On the whole a sum of Rs 1,73,500 will be required every year to finance the scheme. The financial position of the Council ^{under water & drainage act} is not satisfactory.

The Council is now levying water and drainage tax at 2% per annum which yields an income of Rs 35,780. The rate of the water and drainage tax will have to be raised by 9% if the Council is to finance this costly scheme. The present rate of property tax in Mangalore mply. is 17%. If the Council agrees to finance the scheme as suggested above the rate of tax will be increased from 17% to 26%.

6.1.48. ^{h)} A large % increase is in investment under the water supply & drainage fund ~~account~~ & part of it, if not the whole, can be utilized to meet the capital cost of the water supply scheme. But this will not materially improve the position as stated in the office note above. The Council will have to levy an addl. of 9% water tax if it is to finance & maintain this water supply scheme. The total rate of property tax for the municipality will then be 26% which is too high.

124
57171

less
7.1.48
P.W.D.(E)

Ann. 47677-1/11/48
7/1/48

This file has been sent to this Deptt. with reference to item (iii) on p 9 ante. re: bulk supply of electric power to

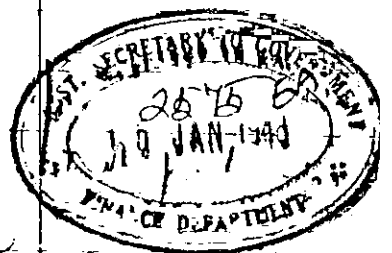
12
 South Kanara Dist. There is already a file on this subject pending in this Dept. According to the Mayor Hydro-Electric Scheme which has been sanctioned and which forms the fourth stage of development of Pykara Hydro-Electric project, South Kanara may get this extension of supply of electric power from the Pykara System in 1950-51. In order to meet the ^{present} demand for power in the South Kanara Dist, the Mysore Govt. were addressed to give bulk supply of power from their Jog Falls Scheme for distribution in South Kanara Dt. They have expressed their inability to supply power to S. Kanara Dt from their Jog Falls Scheme in view of the great demand for power having arisen within their State. It has been ordered in circulation that as there is no early prospect of S. Kanara Dt getting power in the near future this Govt. should press for the supply of Mysore power, especially as a good portion of three villages had to be acquired for the reservoir for the Jog Elec. Project, and that further negotiations with the Mysore Govt. may be taken up with the Mysore Govt. at ministerial level. Further action in this regard is being taken in the connected file.

2. With these remarks, the file may be passed on to Finance.

2/12/48 Fin

Fin (Ex. p. 1)

Please see the notes from the middle of p. 8 above. The remarks of J. & Finance are called for on item 1.



Thro. P. W. D. U. No. 124E/47
 13-1-48

21671 H-1/109

on p. 9. above. Attention is invited to

resolution of the Municipal Council at A on p 59 of the ^{municipal council} suggested that the Scheme ~~may be~~ ^{may be} financed on the usual half grant half loan basis, and has also agreed to raise the rate of tax suitably to enable it to pay the annuity. L.A. considers that the Council will have to levy an additional 9% water tax, if it is to finance and maintain the scheme and that the total rate of property tax for the Municipality will then be 26% which ~~is considered~~ ^{will be} too high.

p 11 above

For
30/1

Finance may ~~propose~~ suggest that the Municipal Council ~~be asked whether it will agree~~ ^{may be asked whether it will agree} to raise its water and drainage tax by 9% in order to enable it to finance the scheme, as otherwise the scheme cannot be proceeded with.

3. The question of providing funds for the grant of half grant and half loan ~~with the~~ ^{may be} to be considered in due course ~~after~~ ^{after} detailed plans and estimates ~~are~~ ^{have been} got ready and after the question referred to 'X' above has been settled.

R.
25.1.48

26
28.1.48

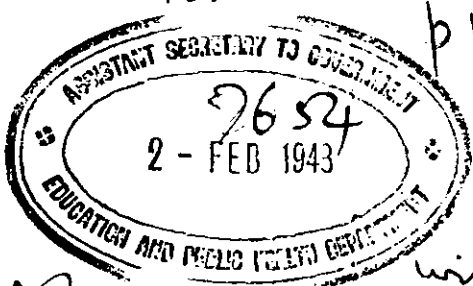
For
30.1.48

S.S.P.A.

E.O.P.H (H-1)

For no 25/5/48 Exp A-1
30.1.48.

Please see the notes on pp 8-10 ante



p 11 ante

The L.A. deptt. point out that in order to finance the w. s. scheme on the usual half-grant basis, the M. C., Bangalore will have to raise the water and drainage tax from 2 p.c. p.a. to 11 p.c. p.a. (and that the total rate of property tax in the Municipality will then be 26 p.c. p.a. which is too high). The Finance deptt. suggest that the M. C., Bangalore may be asked whether it will agree to raise its water and drainage tax by 9 p.c. as stated above. It

ASD
2/48
p 11 ante

do

note above

p59cf

It may be noted that the M.C. Mangalore, has agreed to raise the rate of tax suitably to enable it to pay the annuity on the loan required to finance the scheme. For orders whether the suggestion of finance will be accepted or not, the draft memo below may be approved.

p13 ante

The P.W.D. was asked to note on the request of the M.C. Mangalore, that Govt. may supply bulk electric power to the South Kanara district immediately from one of the major power installations so that the required electric power may be available for the w.s. and d. schemes. The remarks of the P.W.D. are at pp11-12 ante. In the circumstances stated by that dept, no action is called for on ~~the~~ ^{the} request of the M.C. regarding electricity. p12 ante

The file may be circulated to H.M(P.H.)

3/2/48
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1/2/48

H.M(P.H.)

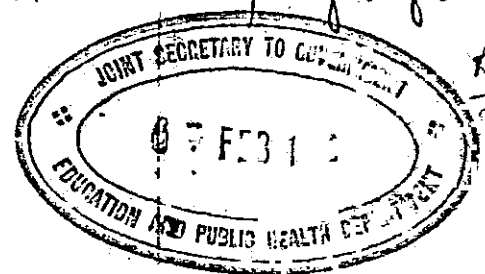
an urgent reply may be called for.

002/48

With reference to the minutes of H.M(P.H.) above, necessary addition has been suggested in para 2 of the draft. The draft may issue after approval of the alteration suggested.

1/2/48

x p2 of draft



1/2/48

1/2/48
1/2/48
1/2/48

Forwarded as Memo. No. 21671H-1/47-15 P.H., d/29.2.48. pp67-68cf
From the Commr., Mangalore City, CS/1405/47, d/17.2.48 p69cf

Please see the notes on pp8-10 ante.

The notes on pp13-14 above may also be perused.

The M.C. Mangalore has

C.A. 21671H-1/w

p69e

Agreed to increase the rate of water and drainage tax from 2 p.c. p.a to 11 p.c. p.a. to meet the cost of execution of the w.s. scheme. In the circumstances sanction may be accorded to the preparation of detailed plans and estimates.

A draft order is submitted for approval L.A. and Fin may see before circulation.

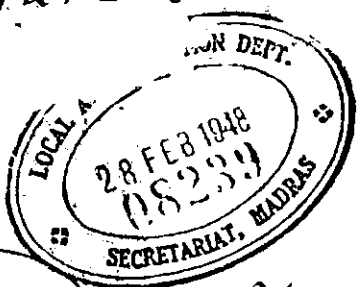
25/2/48 25/2/48

26/2/48 L.A. Finance

C.P.H.U.O. No

21671/47-16-H164

27.2.48



L.A. Dept. Bud II

Please see the previous note of this Dept on pages 10-11 above. The draft order below may be prepared and the case passed on to Fin Dept.

w.o.

3/3/48

23 3.3.48

The C.E. has agreed to raise the rate of water tax by 9% per year in order to finance the scheme.

3.3.48

NO 271-A

12/48

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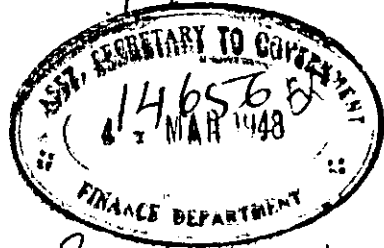
12/48

Ans 8239-10 3/3

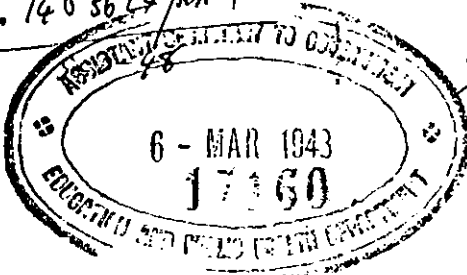
3/3/48

Fin. Dept. on pp 12-13 ante.

The draft order below may be accepted



Fin no 146565/MA-1



ATK 6/3/48

4.3.48 5/3/48 20PM

E. J. H. (H. 1)

The case may be circulated to HM(PH)
before the draft order is issued. (The
draft order explains the case)

4
678

E. J. H. (H. 1)
8/3/48

✓
HM(PH) 11/3



003/48